SHORTWAVE VOICES of the WORLD

BY RICHARD E. WOOD

RFE VOA BBC SBC SABC ABC CBC BCC AIR NHK NZBC RAI ORTF GBC NBC FEBC

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by Richard E. Wood

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Preface

The world is surging forward into the 1970's. The Sixties have left their imprint for man to evaluate in the years to come. The population of the world is exploding and the battle for the minds of men is accelerating. Communications—a word of varied meanings—has many new roles and, in the Free World, the relatively minor activity of shortwave listening is rapidly assuming new importance and stature.

Shortwave listening—SWL'ing for short—is actually far more than just a hobby. It is a window on the world. The voices of all the world's major nations, and many smaller powers, speak daily to American audiences, in English. High-powered transmitters are mushrooming across the globe, while the technological revolution sparked by the transistor is putting shortwave receiving equipment into the hands of those who had never before dreamed of listening to Peking and Paris, to Bangkok and Berlin. The young nations of Africa and Asia have gained their freedom and are determined to make their voices heard at equal strength with such longtime broadcasters as the Voice of America and Radio Moscow.

This book is a guide to this new, fast-changing medium. It is a totally fresh approach to the subject of shortwave broadcast radio, viewed, not from the technical or theoretical angle, but from the strictly practical point of view of actual listening experience. It has much to say, for example, to the layman who has just purchased, or is about to purchase, a shortwave receiver. Techniques acquired during years of experience in shortwave listening are made available to the beginner in this volume, answering such questions as "What stations can I hear?," "When and where must I tune for them?," "Do I have to speak lots of languages to enjoy shortwave radio?," and "How can I write the stations, and will they answer if I do?"

There is much between these covers that will be of interest to the experienced shortwave listener. Stations throughout the world have provided illustrative material and original information on their operations. There are numerous illustrations of QSL verifications, some of them great rarities. The topics which are always discussed when SWL's and DX'ers meet —what is a verification and what should a reception report contain?—are probed.

The cooperation of many international broadcasting stations has made SHORTWAVE VOICES OF THE WORLD possible. In particular, I should like to thank the Voice of America, the Canadian Broadcasting Corporation, the Australian Broadcasting Commission, Nippon Hoso Kyokai, the Swiss Broadcasting Corporation, Norsk Rikskringkasting, Radio Denmark, Radio Free Europe, British Broadcasting Corporation, WNYW, Radio Vatican, Marconi Co., Ltd., Radio Liberty, and many others for providing photographs of their studios, personnel and transmitter installations.

R.E.W.

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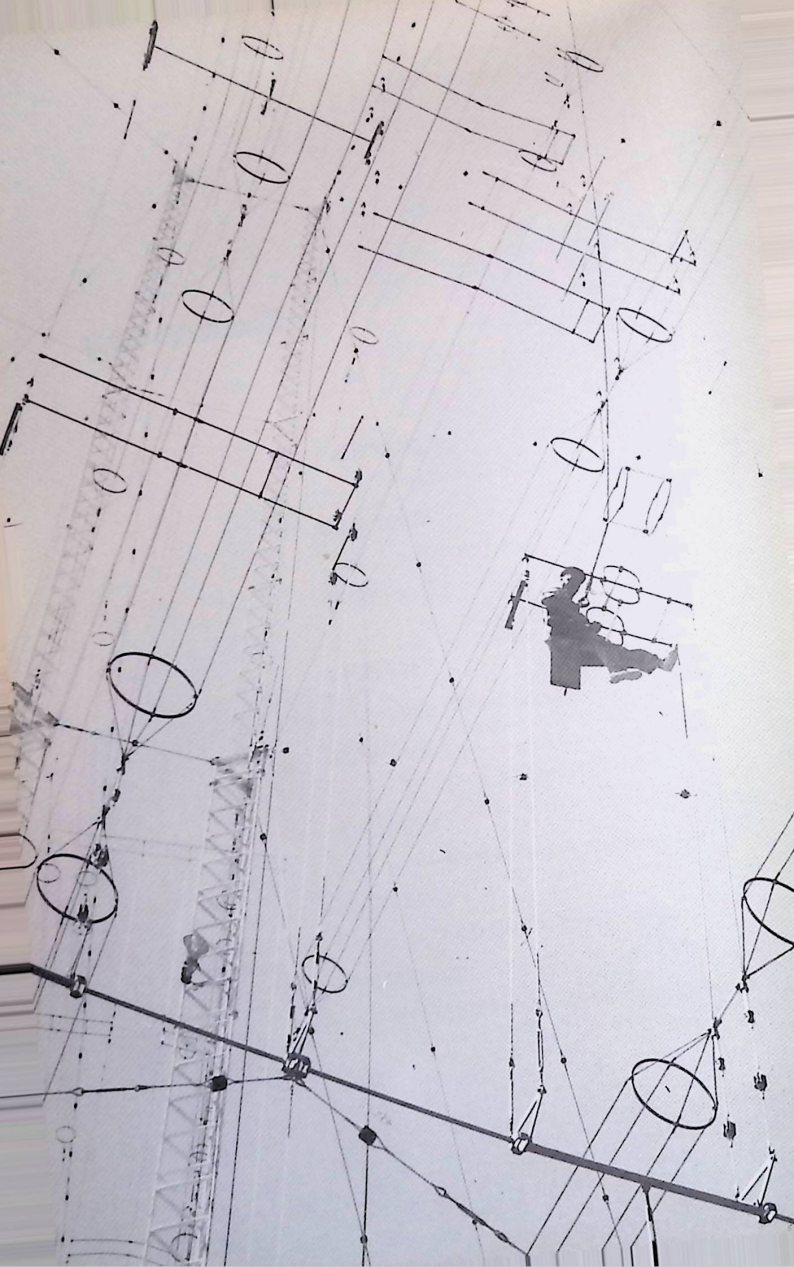


CHAPTER 1

Radio – The International Medium

There are more black-and-white television receivers in the city of Chicago than in the entire continent of Africa. While television has left a permanent mark on American society, and has had considerable impact in parts of Europe, voice radio broadcasting remains the dominant means of worldwide communications. In North America, where television has taken over some of the role formerly reserved for voice broadcasting, the sound medium has assumed new functions and continues to expand as the size of the audience increases.

The domestic role of radio broadcasting has been redefined as more and more North American listeners look beyond their continental borders and discover the fascination of listening to the great variety of overseas radio stations.

International radio reception is, for the most part, largely confined to signals that can be heard in the various shortwave bands. Basically, the shortwave bands are those radio frequencies that lie between the high-frequency end of your AM broadcast receiver dial (1.6 MHz) and Channel 2 of your TV receiver. Within this range of frequencies there are many different services, classes, or categories of radio stations. Here are some of the more important services and stations.

International Broadcast Stations. As the name implies, these are radio stations with worldwide voices beamed to listeners

The voice of Willis Conover may mean little to jazz buffs in the 50 states, but his listening audience in Europe, Africa and Asia numbers in the millions. Seen here signing autographs at the Tallinn (Estonian S.S.R.) Jazz Festival, Conover has been broadcasting over the Voice of America for the past decade. His help in shaping the American image is inestimable.

beyond the borders of the transmitting country. The programs are designed for audiences abroad and are generally in languages that will be readily understood by the foreign listener. Happily, a large variety of English-speaking stations may be heard since many transmissions are beamed to—and are especially designed for—the North American audiences. Programs beamed (aimed by the transmitting antenna) to North America are usually on frequencies that are carefully chosen to insure good reception. Some international broadcasting stations even beam different programs to different time zones of North America.

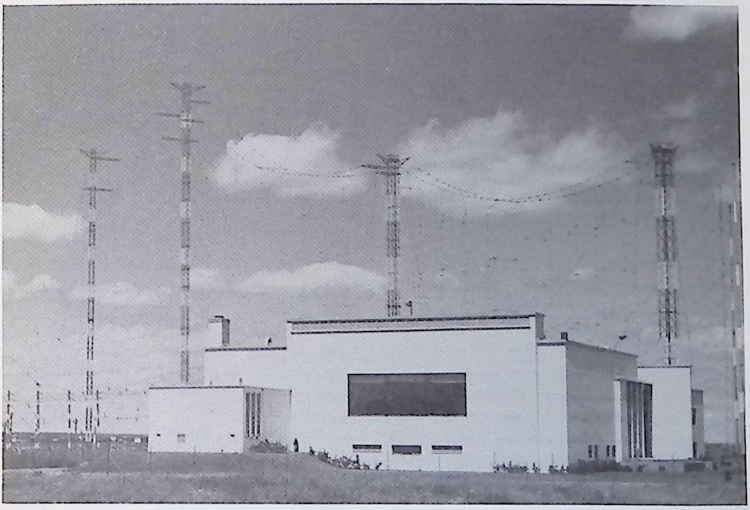
For example, Radio R.S.A., the Voice of South Africa, beams four distinct hour-long programs to various zones in the United States and Canada. The Swiss Broadcasting Corporation, a favorite of many American listeners, has one service beamed to the east coast of North America and another service beamed to the west coast. Each service is broadcast at an appropriate time for early evening listening and enjoyment. Radio Moscow takes advantage of the enormous size of the Soviet Union to beam two services to its North American listeners: the North American Service, actually beamed to the eastern and central United States from European Russia, and the Pacific Coast Service, radiated from transmitters on the Soviet Pacific coast. Both programs originate in Moscow, but when you hear the announcement, "This is Radio Moscow," the signal you hear may actually be emanating from a transmitter in Khabarovsk, Riga, Minsk,

Petropavlovsk-Kamchatsky, Moscow, Kiev, or one of various other cities.

The international broadcasting service, in addition to government operations, includes many stations which are of a non-governmental character. There are missionary shortwave broadcasting stations, for example. These broadcasters are located in many different parts of the world: the oldest is in Quito, Ecuador, the celebrated Voice of the Andes which is often the first shortwave station heard by many American listeners.

Following the lead of this successful American-financed Ecuadorian station, many other missionary radio stations have been set up in such countries as Ethiopia, Liberia, Haiti, Guatemala, Bolivia, Burundi, Philippines, Seychelles and Honduras. All of these stations transmit many programs in the English language and all welcome reception reports from American listeners. Some shortwave listeners (SWL's) have actually created a fascinating, but very specialized, hobby of a full-time search for these private, non-commercial, voluntarily financed, non-political radio stations. If nothing else, these stations make a welcome change from the political propaganda stations that may be heard from other parts of the world.

Not all international shortwave broadcasting stations are either political or religious. In a later chapter, the spotlight will be turned on WNYW, Radio New York Worldwide, a commercial shortwave broadcasting station with studios in New York City—station with a fascinating past and a



Partial view of the huge transmitting plant and beam antennas of Radio Canada. These facilities in Sackville, New Brunswick are used to broadcast programs in a dozen different languages to Europe, Africa and South America. In addition, a special antenna radiates a program to Canadian citizens isolated around the Arctic Circle.

The Spanish language service of Radio New York Worldwide, WNYW, is beamed to all of Latin America. Broadcasting engineer Dick Schumeyer is seen putting El Surco del Aire John Deere on tape. This popular program includes closing stock market prices, news, music and commentaries. On the air from 0000 to 0500 GMT, El Surco del Aire John Deere has an audience in the millions.

most interesting present and future. Then, especially in western Europe, Canada, Australia and New Zealand, there are many broadcasters which, while not operated by their governments, are the official radio voices of their respective countries. These stations are usually operated by chartered, independent statutory corporations. Such services are modeled on Great Britain's non-governmental monopoly radio corporation, the British Broadcasting Corporation (BBC).

The American listener, who is used to the concept of commercial radio and who rejects the idea of state-owned and propaganda-oriented government controlled radio stations, may find it interesting to observe (at first hand) the third alternative, embodied in the operations of the BBC, the Australian Broadcasting Corporation, or the New Zealand Broadcasting Corporation.

Domestic Broadcasting Stations. The United States is one of the few countries of the world—and the only one of any size—which does not have domestic or local broadcasting on the shortwave bands. In Canada, the shortwave band plays an important role in domestic broadcasting. There are domestic shortwave broadcasting stations scattered from coast to coast in Canada from St. John's, Newfoundland to Vancouver, B.C. Possibly of more importance, the Canadian Broadcasting Corporation in Montreal operates a Northern Service beamed to the Arctic Circle from the international service transmitters located at Sackville, New Brunswick. This semi-domestic service provides broadcasting to many isolated communities in the Northwest Territories, the Yukon and the northern sections of the Canadian provinces which could not be adequately served by medium wave AM or high-frequency FM broadcasting.

Throughout South America, and in many parts of Africa and Asia, shortwaves are the most significant domestic broadcasting band. Domestic shortwave broadcasting also plays an important role in the Australian Outback and elsewhere in the far Pacific region. Although these broadcasting stations are designed primarily for

their local or national audiences, numerous domestic shortwave broadcasting signals may be heard in the United States.

Outstanding among the signals heard in the United States are, of course, the CBC Northern Service, the Australian Broadcasting Corporation station in Perth, Western Australia, which serves districts of western and northern Australia; plus a host of tropical-band domestic stations in Africa and Asia. Many of these tropical stations will be discussed later in this book.

propaganda, while the domestic broadcasting services, beamed to local listeners, may tell a very different story.

Another reason for listening to these domestic services is to have a chance to hear music preferred by local listeners. For example, many of the French-speaking African countries such as Senegal, Ivory Coast and the Congo have so-called "international chains" which model their broadcasting style after the French Office de Radiodiffusion Television Francaise

One of the most highly respected shortwave listeners, Arthur Cushen (center) is interviewed by Henry Hatch for the BBC "World Radio Club". The charming Ralda Cushen is at the right. The Cushens live in Invercargill, New Zealand and were on a trip around the world visiting shortwave broadcasters when this photo was taken in London. Arthur hosts a special program over Radio New Zealand for fellow shortwave DX'ers.

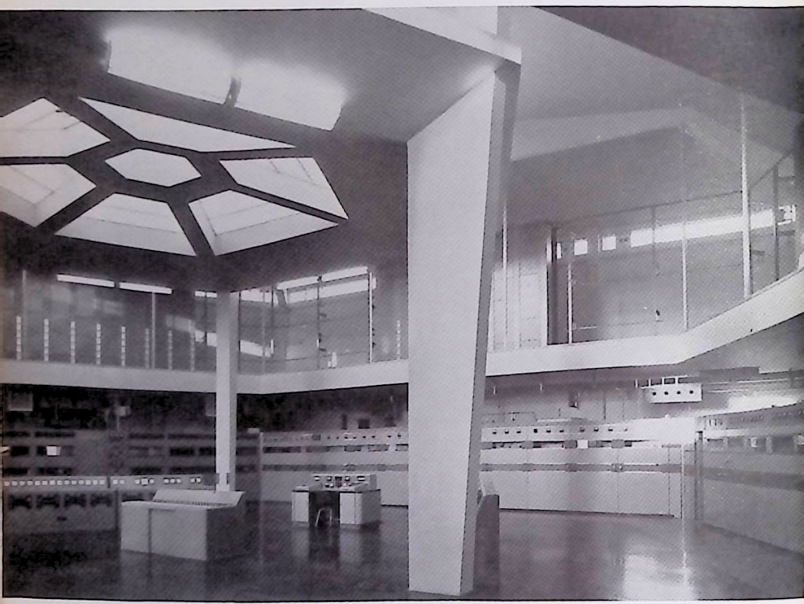
There are many reasons for listening to the programs from domestic or local shortwave stations. One is to gain an insight into the way people in different countries live. The usual overseas broadcasting service, in an attempt to create a favorable impression, will lead its programming with

(O.R.T.F.) with sophisticated European music and French announcements. But the domestic broadcasting services—often just as audible in North America as the "international chain"—carry genuine African rhythms and only a few spoken announcements, principally in African language.

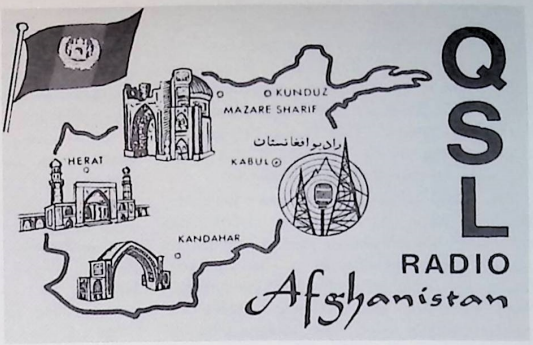
The linguist, able to understand Russian or another language spoken in the Soviet Union, may find it instructive to compare Radio Moscow's domestic news and political broadcasts with those that are carried by its North American service in the English language.

Time and Frequency Stations. The time standard throughout the world is maintained with great accuracy by an interlocking network of radio stations. These stations generally operate on specially selected even frequencies that may be also used by shortwave listeners to check for accurate receiver calibration.

All time measurements in the United States are based upon the definitive time signals broadcast by the National Bureau of Standards' WWV, Fort Collins, Colorado and its Pacific Ocean Subsidiary station, WWVH, Maui, Hawaii. In Canada, the standard frequency and time station is CHU, Dominion Observatory, Ottawa, which announces the time in English and French, every minute.



Inside the transmitting plant of Radio Vaticana, S. Maria di Galeria, Italy. This modern building and transmitting equipment were gifts from Catholics living abroad—mostly in Australia and New Zealand. The programs from Vatican Radio consist of numerous short broadcasts in a wide variety of languages. The broadcasts tell of happenings in the Catholic Church and are introduced with the familiar phrase, "Laudetur Jesus Christus Praised be Jesus Christ".



International shortwave broadcasters appreciate receiving reception reports from distant listeners. In the early days of broadcasting these reports told the station how well its signals were being received. Today a report is used to estimate the size of the audience. However, most stations send verification QSL cards and some even send colorful pennants.

Utility Stations. The term "utility stations" is applied to all radio stations not designed to have their transmissions or programs received by the general public. These radio stations are engaged in point-to-point activities, which is to say that they do not broadcast for public listening, but communicate to an essentially limited audience at one or more designated receiving sites.

The utility stations include ship-to-shore, air-to-ground, ground-to-air, air-to-air, and all other mobile stations; meteorological stations, radar and sounding stations, aircraft guidance stations, facsimile and teleprinter stations, etc.

Many countries throughout the world have laws specifically prohibiting the reception of such stations by the general public. In the United States, while listening is not forbidden, the content of any private message that has been intercepted may not be disclosed.

Amateur Radio. Many books have been written on amateur or "ham" radio communications. This is a subject that will not be covered in this book. It is essentially a form of two-way communications between individuals on certain assigned shortwave bands. This is the opposite of broadcasting, which is directed, not to individuals, but to the listening public.

No radio amateur may direct his transmissions to a broadcasting station, nor may any broadcasting station direct its transmissions specifically to an amateur. Radio amateurs generally operate without fixed schedules and use any suitable frequency within their own assigned bands. Broadcasting stations on the other hand generally maintain fixed schedules, although they may be varied seasonally (or more frequently) and these schedules are generally announced and published in various reference guides.

While some listeners tune the amateur bands, it is the broadcasting bands, both international and domestic, which hold the greatest fascination in shortwave listening. This book is your guide to such broadcasting stations - - well over a thousand of them - - which you may, with experience, hear on the many different and distinct broadcasting bands within the shortwave range of your receiver.

CHAPTER 2

Dividing Up the Radio Frequencies

All radio receivers that claim to be able to tune the shortwave bands do so by a variety of methods—some forthright and honest, others gimmicky and misleading. In the strictest interpretation, the shortwave bands are those frequencies between 1700 and 30,000 kHz, or 200 meters down to 10 meters.

The so-called "communications receiver" usually tunes the entire shortwave spectrum. Receivers other than the communications-type may have one, two or several bands plainly marked "SW." These bands will not cover the entire shortwave spectrum, but some segment of it—for example, 6000–18,000 kHz, 8000–16,000 kHz, etc. Some receivers may even subdivide the tuning segments even further and may have general shortwave coverage on one or two dial ranges, plus additional coverage which spotlights certain narrow ranges of frequencies on several other dial ranges. Usually, the spotlighted tuning ranges are a few of the principal international shortwave broadcasting bands.

These international bands, where most of your listening will be concentrated, are usually labeled in two ways. The bands may be marked in meters, which is their wavelength, or they may also be calibrated in kilohertz (formerly referred to as kilocycles) in which their frequency is measured. The relationship between kilohertz and meters is reciprocal. Simply stated, as

frequency in kilohertz increases, the wavelength decreases and vice versa.

The shortwave listener usually speaks of the various meter bands and the frequencies inside each of the bands are referred to in kilohertz or megahertz. Many modern communications receivers are now calibrated by frequency only and (particularly in North America) have no markings in meters. A typical multi-band shortwave receiver might have dual-standard dial markings thusly:

WAVELENGTH	FREQUENCY
49	6
41	7
31	9
25	11
19	15
16	17
13	21
METERS	MEGAHERTZ

Abbreviations play a big part in understanding the frequencies, wavelengths and dial settings of shortwave receivers. The word meters is usually abbreviated m, e.g. 16m, 13m; and megahertz is abbreviated as MHz. A megahertz is equivalent to 1000 kilohertz (kHz) which in turn is equal to 1000 hertz (Hz). It is conventional to capitalize the M in MHz, while a small letter k is used in the abbreviation kHz.

Until a few years ago, the terminology of cycles-per-second, kilocycles-per-second, and megacycles-per-second was in general use, but these terms are now being replaced through an international accord by the term hertz, named after the German radio pioneer Heinrich Hertz. These terms were first introduced in French and German, but are now spreading in English thanks to the announcements of frequencies in kilohertz by most of the world's major international broadcasters. Certain broadcasters, notably in Europe, still announce their exact wavelengths in meters, but this is an obsolescent practice that will probably disappear in the next few years.

The meter band designation for a general segment of the shortwave range is still current, however, and when a shortwave listener speaks of "listening on 16," it is understood that he is referring to the 16-meter band.

International Bands. The broadcasting bands of particularly great interest to shortwave listeners are known by the following numerals and encompass the stated frequency range:

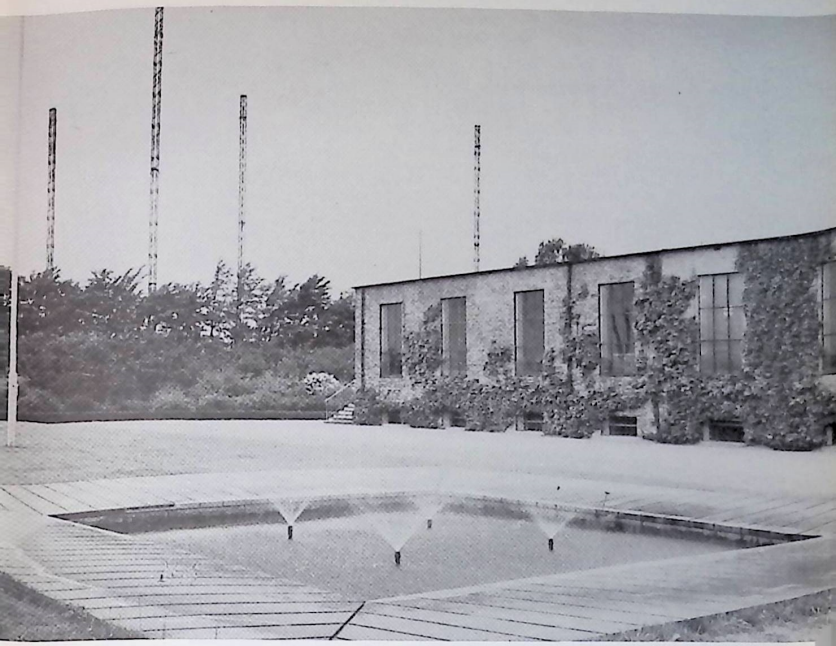
METERS	KILOHERTZ
49	from 5950 to 6200
31	from 9500 to 9775
25	from 11700 to 11975
19	from 15100 to 15450
16	from 17700 to 17900
13	from 21450 to 21750
11	from 25600 to 26100

As mentioned later on in this book, not every international broadcasting station transmits within the confines of the above frequency segments. A few broadcasters—notably the BBC—continue to use frequencies somewhat outside the international broadcasting bands. Then, a number of the Communist-bloc countries obviously feel that international treaties do not apply to them and thus establish transmitting frequencies wherever they please.

In addition to the above international broadcasting bands, there are two semi-international broadcasting bands which are not assigned for use by radio stations in North America. These are:

METERS	KILOHERTZ
75	from 3900 to 4000
41	from 7100 to 7300

Unfortunately, for shortwave listeners interested in tuning these two bands, they will soon find that in North America both have been assigned to amateur radio stations. The interference created by radio amateurs on these bands—although seemingly intentional—is simply due to the fact that the radio amateurs were there first and



Although it was one of the earliest shortwave broadcasters, Radio Denmark has done little to enhance its position as an important radio voice. This transmitter building 10 miles outside of Copenhagen houses a single 50 kilowatt unit. The two frequencies used by Radio Denmark are the same as they used years ago. It is nearly impossible to hear Radio Denmark on 9520 kHz. However, 15,165 kHz has been audible.

in North America (essentially Region II established by the International Telecommunications Union) these are the legitimate domains of radio amateurs.

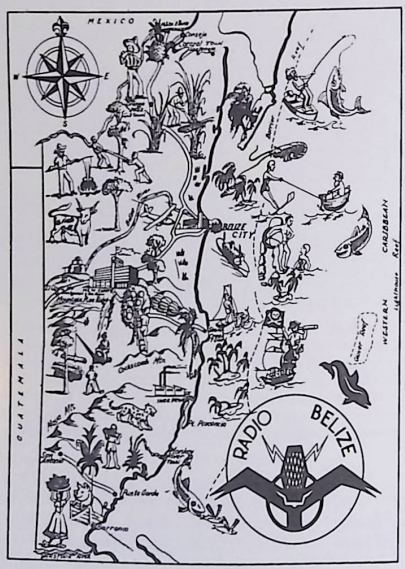
The Tropical Bands. In North America the main domestic broadcasting band is so dominant that it is popularly, though quite inaccurately, designated the "AM broadcasting band." This is really (technically speaking) the medium wave band between 540 and 1600 kHz. However, in the tropical zone around the world—primarily Africa south of the Sahara, Latin America north of Argentina and Chile, Asia and the South Pacific, the principal broadcasting band is the "Tropical Band." There are three such tropical bands:

METERS	KILOHERTZ
120	from 2300 to 2500
90	from 3200 to 3400
60	from 4750 to 5060

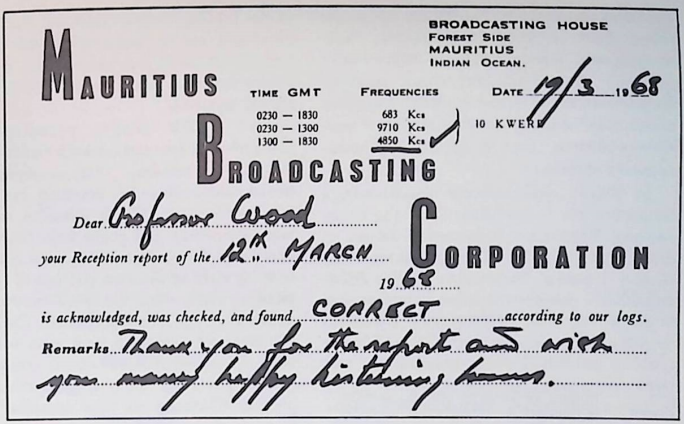
Of the tropical bands, 60 meters is the closest band to the principal international broadcasting bands and the North American listener will find it best for DX'ing the tropical stations. This is the prime broadcasting band in such countries as Venezuela, Colombia and much of tropical South America. Broadcasts from countries such as Honduras, where there are some low-powered stations operating in the international bands, are generally only audible at a distance (DX) on 60 meters.

Many shortwave listeners find that the 90-meter tropical band provides much interesting reception. Although there are numerous non-broadcasting radio services operating in the frequency range of the 90-meter band, there will nevertheless be many tropical broadcasters audible in North America. The tropical stations operating in the 90-meter band tend to be of lower power than those in the 60-meter band. Most of the capital cities in tropical Latin America will have one or more 60-meter outlets, while on 90 meters the outlets will be mainly provincial towns. Certain countries that cannot be heard on 60 meters may be sought out in the 90-meter band and these always represent challenging DX catches. At writing they included Belize, Fiji, Bougainville and Malawi.

For the avid shortwave listener the 120-meter band is a true challenge. It is a band on which even experienced DX'ers have never heard a broadcast station. The propagation characteristics of the 120-meter band are very similar to the medium wave AM broadcasting band used in North America. There is considerable interference and daylight reception on 120 meters



Radio Belize, Belize City, British Honduras is an example of a country with a single shortwave broadcasting outlet on the 90-meter band. In the tropics the lightning static level makes reception on medium waves utterly impossible. Almost all local broadcasting is on one of the three tropical bands. Although the signal is intended to serve an audience within 75-100 miles of the transmitter, a station such as Radio Belize, may be heard thousands of miles away at certain hours of the day. This QSL verification is highly prized by all shortwave DX'ers.


BROADCASTING HOUSE
FOREST SIDE
MAURITIUS
INDIAN OCEAN.

MAURITIUS BROADCASTING CORPORATION

TIME GMT — FREQUENCIES — DATE 19/3/1968

0230 — 1830 683 Kcs
0230 — 1300 9710 Kcs
1300 — 1830 4850 Kcs
10 KWERS

Dear Professor Wood

your Reception report of the 12th MARCH 1968

is acknowledged, was checked, and found CORRECT according to our logs.

Remarks Thank you for the report and wish you many happy listening hours.

On the other side of the globe from most North American listeners is the island of Mauritius. This valued QSL card is for reception on the former British colony's Independence Day.

is almost impossible. The transmitting power from stations in this band tends to be very low; operation is often quite irregular and marginal in many countries. Yet, the keen North American shortwave listener may log such countries as Haiti, Brazil, South Africa, Zambia, China and Indonesia.

With the powerful, English-speaking stations loudly and clearly audible in the international broadcasting bands, why bother with the tropical bands, where reception is seldom perfect? These bands represent the true challenge of DX'ing and as they are domestic bands they give an honest insight into the life of the countries of the tropical belt—the flavorful countries stretched around the equator and between the tropics of Cancer and Capricorn.

Frequency Choice. All international broadcasters are entitled to use any frequency inside the specified international bands. Unfortunately, there is no international enforcement or agreement on frequency assignments and conflicts in frequency use (or channel occupancy) are common. The bands themselves are essentially the same as they were 30 years ago and the number of available frequencies in each band has not increased. However, the number of stations wanting to use these frequencies has more than quadrupled and the bands are crowded well beyond their capacity.

A way of alleviating this overcrowding is not yet on the horizon, but eventually the international broadcasters must certainly agree to allocate new frequencies to international broadcasting. Some broadcasters feel that these frequencies can be best gained by usurping the few frequencies left to the radio amateurs. However, some areas outside the international bands are being freed for potential broadcast use as various radio services move to the ultrahigh frequencies for point-to-point communications, or satellites begin to play a bigger role in providing more communications channels. Indeed, if point-to-point com-

munications could be carried on by means other than on-the-air transmission, their secrecy and privacy could be more easily assured. But, most important, valuable frequencies are reserved for use by services which may thereby reach the widest possible audience, that is to say, by international stations.

In theory, international broadcasting's frequency use is coordinated by the International Frequency Registration Board of the International Telecommunications Union, Geneva, Switzerland. The IFRB publishes a massive tentative frequency use table on the basis of frequency schedules submitted by member countries. After the table is published many broadcasters will shift frequencies or change schedules to reduce interference. Unfortunately, these good intentions frequently come to naught. The idea of international cooperation in shortwave broadcasting is more fiction than fact.

Many broadcasters do not report their actual operations. At least a dozen international broadcasters are known to schedule the use of particular frequencies when equipment to do the job just doesn't exist! The broadcasting stations of some countries are so poorly equipped that the transmitting frequency will drift and the station will operate - - intentionally or unintentionally - - 2 or 3 kHz off its announced frequency. At least 20 other countries have no intention of honoring any international agreement on frequency use. These stations broadcast outside the "established" international broadcasting bands.

Hence, except for a certain amount of cooperation which takes place among a few of the leading Western stations, the assignment and use of frequencies inside the international bands has reached the stage of a free-for-all, a totally nationalistic anarchistic squabble.

The IFRB makes recommendations when it foresees a conflict of frequencies and schedules. For example, two broadcasters may be planning to beam transmissions to North America on the same frequency and at the same time. The IFRB can do no more than warn the engineering staff of the two stations of the impending clash, since the IFRB has no international power of enforcement. Generally, the engineers involved view such warnings with skepticism and will simply rely on the greater power of their transmitters or the greater efficiency of their antenna arrays to blast their signal through to the target area.

In no uncertain terms, international broadcasting has become a dog-eat-dog power race and to some extent the future of international broadcasting is not too promising.

Many more conservative international broadcasting stations, or stations that have been left behind in the power race because of a lack of governmental financial support, prefer to stick to their older frequencies. They continue to use these frequencies despite new interference which may have rendered their signals more or less useless. These conservative and frequently inaudible stations include Radio Denmark and Radio Nacional de Espana, Madrid. These stations feel that by sticking to their familiar frequencies they will maintain their traditional audiences—a philosophy that must be hard to justify.

CHAPTER 3

Voices of the World

According to the survey made in 1969, there were 182 countries with shortwave transmitting facilities and approximately 1075 different stations in operation. Obviously, not all of these shortwave stations are international broadcasters, although the majority are deeply interested in promoting their nation or political philosophy beyond their borders.

Many of the international broadcasters have interesting backgrounds and the material that follows is a rapid-fire capsule history of 17 different stations.

THE VOICE OF AMERICA

The VoA, as it is usually abbreviated, is the radio broadcasting arm of the United States Information Agency. The VoA made its first appearance from the North African shores during the closing years of World War II. A VoA relay station is still operating from Tangier, Morocco, the one remaining relic of those days.

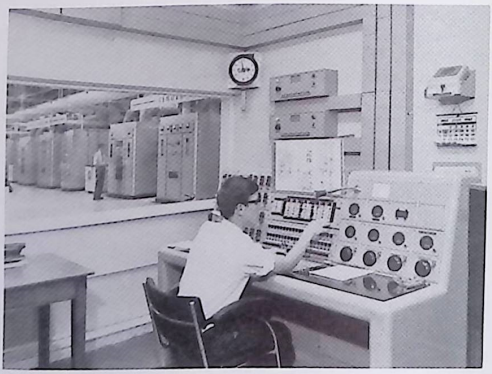
Now beaming programs to the Middle East, VoA Tangier was originally located in the old International Zone—a piece of Tangier once jointly under the control of the principal world powers. In those days, VoA Tangier was but one of many non-Moroccan broadcasting stations. However, in 1960, the International Zone was reincorporated into the Kingdom of Morocco, and all independent radio stations (mostly

Christian missionary stations) were closed down by the government of Muslim Morocco.

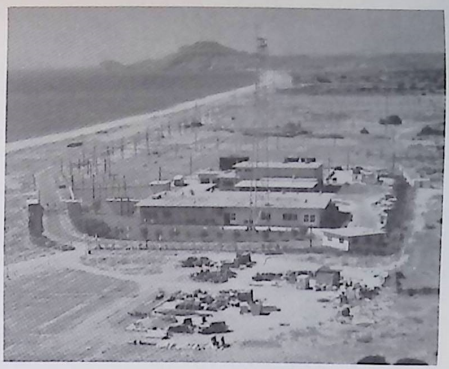
Paying an unknown yearly rental to the Moroccan government, VoA Tangier has been allowed to continue broadcasting. This relay station has lost much of its importance in line with the shift away from Europe as a strategic propaganda area and a move toward non-aligned African, Asian and Latin American countries.

In order not to interfere with the internal affairs of the country on whose soil it stands, the VoA does not use the Tangier relay for its Arabic radio transmissions. They are, however, quite effectively beamed to the Middle East from a base in the mid-Mediterranean, located on the island of Rhodes in Greece's Dodecanese Islands. This relay station was until recently a shipboard operation, on the USS Courier, which has now returned to the United States for refitting. It will be held in readiness to sail at short notice to any future trouble spot. The Rhodes relay station is now on dry land. A second VoA relay to the Balkans is in the northern Greek city of Thessaloniki. This relay beams its transmissions to Bulgaria, Albania, Hungary and other adjacent countries. It also serves as a relay broadcasting station for the Greek domestic radio, as the Hellenic National Broadcasting Institute lacks a high-powered network of domestic stations and would otherwise have great difficulty in making its signal heard throughout the Greek territory. A new relay site in Kavalla is now being readied to begin operations in 1970. Presumably, this site will be used to beam VoA programs into Africa, Central Europe and the Middle East.

Another European relay base of the VoA is in Munich, West Germany. This relay should not be confused with Radio Free Europe or Radio Liberty, both of which have headquarters in Munich. In the days of the cold war, the Munich studios of the VoA originated programs in many of the Eastern European languages; but nowadays, all such programs originate in Washington. Also in Europe, the VoA operates from transmitters in Wooferton,



To reach an audience in eastern Europe, the BBC has placed at the disposal of the VoA a transmitting facility at Wooferton, England. Several Marconi transmitters rated at 250 kilowatts are in daily use. The VoA either leases existing equipment or establishes its own permanent relay station.



The 50 kilowatt transmitters of the VoA relay station on the island of Rhodes operate mostly in the 41 and 25 meter bands. This is a view of the receiving site and the directional antennas that pick up American news broadcasts and political commentaries to be relayed in the English, Arabic and Turkish languages.

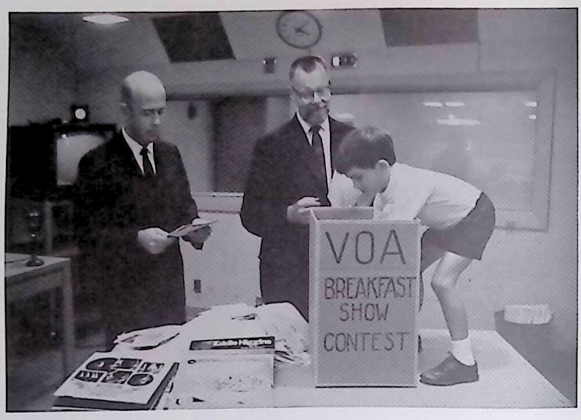
England, placed at its disposal by the BBC.

The increasing emphasis on broadcasting to Africa necessitated the establishment of the important Monrovia VoA relay station located outside the Liberian capital city. This station is also used to beam programs across the south Atlantic to Brazil.

Some of the VoA's African programming, including those in the English and French languages, have succeeded in capturing the spirit of modern Africa. These programs have large audiences who listen in, using low-cost transistorized radio receivers. The musical request programs are especially popular. Thanks to the Monrovian VoA relay and the BBC Ascension Island relay, the West is now in a position to compete with the powerful Communist radio voices beaming into Africa in such languages as Swahili, Lingala, Malagasy, Hausa, Somali and Bambara.

Another VoA relay station linked with a national broadcasting organization, as in the case of the BBC, is the Colombo, VoA relay which is connected with Radio Ceylon—a powerful commercial station beaming to India, Pakistan and Burma. Further east and operating on medium-waves to catch listeners not equipped for shortwave reception in southeast Asia, the Free Asia Radio Station is a million-watt operation constructed by the USIA, but under the nominal control of the Thai government. The Bangkok relay is reported to have cost over a million dollars to construct, but was actually sold to the Thai government for 5¢! A portion of the daily program is produced by the Thai government, while the remainder of the programming (in the local evening only) consists of rebroadcasts by the VoA in English, Indonesian, Laotian and other area languages.

Across the South China Sea lie three important relay transmitters, one equipped like Bangkok with a megawatt medium-wave installation. These are the Malolos, Poro and Tinang relays used for programming in Chinese, Vietnamese and other languages. The VoA has also placed one transmitter at the disposal of the National Philippine Broadcasting Service, P. B. S. To the north, at Naha, Okinawa, lies the third operational megawatt medium-wave outlet, plus a battery of shortwave transmitters. The future of this station when the Ryukyus are eventually returned to Japanese sovereignty has not been clarified, but as Japan permits the operation of the American-run Far East Network, F.E.N., in several Japanese cities and our American bases in that country, a precedent does exist.



One of the more unusual shortwave programs is the "Breakfast Show" with co-hosts Phil Irwin and Albert Johnson. Jonathan Ustin, son of another Breakfast Show staffer helps pick winners of record albums from the contest for overseas listeners.

The main east coast transmitting center of the VoA lies in the marshy fields surrounding the small town of Greenville, North Carolina. Programs originating in the Washington, D.C. studios are relayed there via land-lines and microwaves. When the Greenville facility was opened several smaller shortwave transmitters on the east coast were closed. The only other east coast transmitter still operating is located at Bethany, outside of Cincinnati, Ohio. This installation is now mostly used for broadcasts of the AFRTS and to relay Spanish language broadcasts of the U.N. sessions to Central and South America.

On the west coast, Delano, in the heart of the California wine country, and Dixon, also in California, are the sites of transmitters beaming to Asia and the southwest Pacific. There is a relay transmitting site outside of Honolulu, Hawaii, but at this writing, it is being used on a stand-by basis only. This relay is on the air for brief periods for transmitter maintenance and is only scheduled for use when there is a loss of contact with the Asian relay transmitters. With its very limited, irregular schedule, the Honolulu relay is a difficult listening catch for DX'ers in many parts of the world.

The VoA programs are usually relatively honest and straightforward, although many of its Congressional critics claim that it lacks the hard-hitting propaganda maneuvers of the Communist bloc countries.

Undoubtedly, the most successful program transmitted over the facilities of the VoA is, "Music U.S.A.," including the "Jazz Hour." Both are hosted by Willis Conover in carefully enunciated simple English designed for those listeners with only a minimal knowledge of the language. The music is frequently taped by avid fans in the Communist countries. Indeed, for

many radio listeners in those and other countries, Willis Conover's voice is their first introduction to the English language. American tourists in Red Square have had the words, "This is Willis Conover, Music U.S.A.," hissed in their ears by Russian passersby who knew no other English, but wished to express their appreciation for this famous and popular jazz music program.

Another exceptionally popular English-language program is the "Breakfast Show." This is an attempt to introduce the easy style of American domestic AM radio into the international broadcasting bands. Popular music alternates with interviews, news flashes, science features, snappy question-and-answer sessions on U.S. life, and the whole is designed to give the VoA a distinctive, breezy tone.

In recent years, the VoA has learned that it cannot compete, as an international broadcaster, by attempting to imitate the format of the BBC with its more stylized programming, longer more serious newscasts, lengthy comedy shows and sports reports. The VoA has very wisely decided to reflect the fast-moving nature of American life in its day-to-day programming, and in its own way has looked toward American domestic radio for inspiration.

VOICE OF THE ANDES

From high in the Andes Mountains in South America, from Pifo near Quito, the capital of the Republic of Ecuador, comes HCJB, The Voice of the Andes, the oldest and best known of the missionary international shortwave broadcasting stations. For many shortwave listeners, especially in the Americas, HCJB is their first DX catch, and it is to Box 691, Quito, Ecuador, that their first reception report is sent. This is the station that has been the DX'ers friend for many years and continues to issue a wide variety of QSL cards, plus many gifts and prizes for listeners. HCJB also broadcasts an interesting weekly DX program for shortwave listeners.

At this writing, HCJB broadcasts in 12 different languages, but more are planned as the new RCA transmitting equipment ("Project Outreach") now being installed goes into operation.

HCJB is financed by donations from individuals and church groups. It interprets its call letters as "Heralding Christ Jesus' Blessings" (in Spanish "Hoy Christo Jesus Bendice") and unlike some missionary radio broadcasting stations which rely mostly or even exclusively on pre-recorded programs and transcriptions, HCJB originates most of its programs and captures the flavor of the Ecuadorian atmosphere in its daily features. In fact, HCJB is a favorite station of many shortwave listeners who would not usually tune to a religious broadcaster. This popularity is the result of nearly 40 years of broadcasting experience and it is a technique other missionary stations and some government-operated broadcasters could emulate.

HCJB has a unique claim to fame since it introduced the "Cubical Quad" antenna to the radio broadcasting fraternity. Because of the high altitude (over 9000 feet) of its original transmitting site closer to Quito, a special antenna was developed by Clarence Moore, W9LZX to overcome static discharges. The Quad not only curbed the "St. Elmo's" discharges, but noticeably improved the strength of the HCJB signal. Radio amateurs were eager to duplicate the Quad which is now a popular antenna used by hams and CB'ers alike. But even the Quad outlived its usefulness at HCJB, which now radiates strong signals via "curtain-type" antenna arrays.

RADIO AUSTRALIA

Through the efforts of the overseas service of the Australian Broadcasting Commission, Radio Australia has put a rather distant and isolated country on the map for radio listeners throughout the world. This friendly broadcaster uses a music box version of "Waltzing Matilda" as its interval

signal, and begins all transmissions with the hilarious laugh of Jacko, the laughing jackass, or kookaburra bird. The mailbag sessions from Radio Australia are very popular and in recent years Radio Australia has aspired to, and won, a reputation as the authoritative news source of events affecting southeast Asia. Like Radio Havana, Radio Australia provides a French language service in a part of the world where French programs would not otherwise be heard with any potency and thus has great appeal in such traditionally French-speaking nations as Cambodia, Laos and Vietnam, and for students of the French language in other countries. However, its main foreign language service is beamed to Indonesia. Indonesia is a country where all broadcasting is on shortwaves and the average listener is tuned in to the same frequencies and the same bands as the foreign listener and broadcaster. Hence, Radio Australia has a vast potential audience in its most immediate northern neighbor. Radio Australia's interest and loyalty to this audience has developed as a result of the very fine musical request programs presented by a largely Indonesian staff of announcers.

A new relay transmitting site for Radio Australia was recently opened at Darwin, in Australia's Northern Territory and it is hoped that this site will be able to provide high-powered, low-frequency coverage of the southeast Asian area while programming on the higher frequencies will continue from the Shepparton, Victoria transmitters.

In popularity polls among shortwave listeners, Radio Australia has often gained top honors. Its programming is relaxed and expansive, but never lacking in the human touch, and with more light and classical music than most other international broadcasters. This, combined with its intensive, unbiased news coverage of Asia and the Pacific, has made Radio Australia one of the world's great radio stations. Its weekly DX program for shortwave listeners based on information from Australia, New Zealand, Ceylon, Pakistan and Japan has a deservedly large audience.

BRITISH BROADCASTING CORPORATION

The British Broadcasting Corporation (BBC) is an independent corporation based in Great Britain controlled by a 12-man Board of Governors. The BBC's neutrality, which many of its critics deride, is insured by its Board of Governors being made up of representatives from different political

Editor of the "Business and Industry" program, Brian Sharpe (third from the left) makes a not-too-serious point to Alan Watson (extreme right) during a discussion of the monetary situation. Also taking part in this BBC program were (left to right) Peter Hobday, Gerald Thompson and economist Roger Opie.

Compere Pat Doody in action in the "Pop Session" BBC studio. This popular program is on the air in the BBC World Service every Saturday, Monday and Tuesday at various times.

parties, social organizations, trade unions, etc. Although the languages to be broadcast and the amount of daily transmission time are all decided upon by the British Government, the program content and day-to-day operation are not under direct governmental control.

Originally established as an English-language voice to speak to the Dominions and to British settlers abroad as the "Empire Service," the "BBC World Service" now broadcasts to English speaking people all over the world and is no longer concerned only with people having close links with Britain. It was a sign of modern times when program names were changed in the early 1960's from the "General Overseas Service" to "BBC World Service," and the "Home News From Britain" program broadcast after the world news several times each day received the more neutral title of "News About Britain."

News is the main commodity in which the BBC deals and most listeners to international shortwave broadcasting regard the BBC as the world's most authoritative news source. In fact, the news broadcasts are relayed by many other overseas broadcasting organizations—not only in British colonies and overseas territories—but by countries that have been free of British rule for many years. These include such nations as Canada, Australia, Ceylon and New Zealand, plus others that have never been under British rule, such as Liberia. The BBC estimates that 50 countries rebroadcast some BBC programs each day. The BBC's transcriptions services provide tape and recorded programs to an even greater number of broadcasting organizations.

The "BBC World Service" is beamed daily to listeners in all parts of the world and is directed to certain geographic areas

at appropriate listening hours. Due to the large number of transmitters (68), frequencies in use and to the broadcasts from relay transmitting sites at Ascension, Cyprus and Malaysia, it is usually possible for the most inexperienced shortwave listener to find and listen to the "World Service" throughout its entire 24-hour daily schedule.

Also in the "World Service" are many other attractive feature programs including plays, musical "hit parades," quiz shows and commentaries. Having more broadcasting time at its disposal (due to lack of propaganda) than the usual international station, the BBC produces longer and more frequent feature programs than do the majority of overseas broadcasters which usually have independent programs beamed, for rather short periods of a half hour or an hour, to various target areas. These other broadcasters tend to repeat the same material (changing only the news) throughout the day.

The BBC, like most large international broadcasters, has an extensive foreign language service with special strength in the Arabic and East European languages. Broadcasts were made in 1968-69 in 39 different languages. The BBC's European service known as "BBC Europe" estimates that up to one-fourth of the population of East Germany and Yugoslavia listen regularly to the London transmissions. The BBC "Russian Service," despite intermittent jamming, is also very popular and letters are received from listeners in all parts of the Soviet Union.

In the Arab countries, the student of politics listens and makes careful comparisons between the BBC's newscasts and those of Radio Cairo. The BBC has maintained its reputation for accuracy and impartiality over the years. Where wide differences of opinion exist in neutral countries between what is being heard from the BBC and what is being heard from Radio Moscow, the BBC almost invariably is given more credibility.

Unlike Radio Moscow and some of the other broadcasters behind the Iron Curtain, the BBC does give local transmitter relay site identification. The transmitter located in Limassol, Cyprus, for example, announces as the "British Relay Station East in the Mediterranean," while the Ascension Island station identifies itself as the "BBC Atlantic Relay Station."

RADIO CAIRO

From meager beginnings under King Farouk, Radio Cairo rapidly rose to a leading position in the Middle East under Gamal Nassar. Radio Cairo with its main Arabic service directed to neighboring countries under the name, "Voice of the Arabs" (Saut 'ul Arab), was for a long time the only high powered broadcasting station operated by an Arab government. However, the oil rich communities in the Middle East now find high powered shortwave broadcasting stations a new plaything and the listener will hear transmissions from such nations as Saudi Arabia, Lebanon, Kuwait, Syria, etc. which earlier in the history of broadcasting had only small internal radio stations.

Radio Cairo is the inspiration of hundreds of thousands of Arab radio listeners even though its oratory has in recent years tended to become repetitive and to lose much of its originality. Lavish expenditure of tax revenues, however, continues to produce many different programs on a great variety of radio frequencies. There are specialized services for Palestinian refugees, for the Sudan, and in a great number of foreign languages for overseas listeners—especially in South America for Arab immigrants.

The services of Radio Cairo have often been operated under the titles beginning with the word "Voice." The "Voice of Free Africa" in Swahili and other languages operated from Cairo in the years prior to the independence of Kenya and Tanzania. Now the programs continue as the "Voice of Africa" beamed to east, central and west Africa. A service is

beamed to help Islamic missionary work in Africa and the Qu'ran service broadcasts religious readings throughout most of the day. The European services are much lighter in tone, with popular western music and courses in the techniques of Arab music.

jammed from the Chinese mainland), some of the programs of the Voice of Free China can usually be heard in most areas throughout the world.

The transmitters of the BCC are also placed at the disposal of Radio Liberty for several hours each day. At that time

Voice of Free China, Taipei, Taiwan gives DX'ers a country for their "totals" that might—under other political circumstances—not have a shortwave outlet. Radio Liberty leases the facilities of the Broadcasting Corporation of China to beam programs to Siberia and the eastern part of the Soviet Union.

VOICE OF FREE CHINA

The Broadcasting Corporation of China operates an overseas service under the name, The Voice of Free China. It is a much smaller operation than Radio Peking, but it does broadcast in several Chinese dialects and in seven foreign languages. Operating from Taipei, Taiwan, it beams its programs to most parts of the world, and its English language program, "The Dragon Show," conducted by the Dragon Man and the Dragon Lady, is a regular highlight for those who can receive the BCC.

Almost always subject to severe jamming (even its English language services are often

Radio Liberty broadcasts Russian language programs tape recorded in their Munich studios for transmission from Taipei to the Asian part of the Soviet Union. These broadcasts are also subjected to intense jamming. Listeners who can hear Radio Liberty via the BCC equipment should report reception to the Munich headquarters of Radio Liberty, thus gaining a valid QSL confirmation for reception of a signal from Taiwan, but mailed from the Federal Republic of Germany.

DEUTSCHE WELLE

The Voice of Germany is the united overseas broadcasting service of the various domestic broadcasters from the provinces

of West Germany. A relative newcomer among international broadcasters, totally without facilities when founded in the post-war years of Germany's reconstruction, the Deutsche Welle has had to develop its audience in competition with such established broadcasters as the VoA, BBC, Radio Moscow, etc. Now, however, the programs of Deutsche Welle and even its interval signal are heard from the loudspeakers of tens of thousands of listeners in all parts of the world.

Deutsche Welle has a fully operational relay site in the very heart of Africa, at Kigali, Rwanda, once a German colony. The Kigali relay, thanks to its favorable tropical location, is heard throughout the world, although mainly intended to improve the reception of Deutsche Welle programs in Africa. It is also reported that Deutsche Welle relays are under construction in Portugal and that one is planned for Guatemala. At that time, with three major relay sites in operation, Deutsche Welle will rival the BBC with its three overseas bases in Malaysia, Cyprus and on Ascension Island.

The Voice of Germany is very listener conscious. Deutsche Welle produces many attractive publications and is interested in maintaining good relations with its audience. The DX editor of one of its publications, Gustav Georg Thiele, originated the SINPO code that is now accepted and recommended for use in reporting reception to international broadcasting stations around the world.

One interesting language service of Deutsche Welle is the fortnightly broadcast in Sanskrit, the language of classical learning in India, also known as the "Latin of India." These programs revive the memory of Friedrich von Schlegel, German Orientalist, who first brought the awareness of the ancient learning of India to Europe and was one of the founders of modern linguistic studies. This broadcast in Sanskrit from the heart of Europe is one of the oddities of international radio and may only be compared with the Vatican Radio's regular newscast in Latin, intended for the Catholic clergy in eastern Europe.

Deutsche Welle's interval signal is one of the most distinctive on the radio dial. It is taken from Beethoven's "Fidelio," "Es sucht de brüder sein brüder," played on the celeste. This interval signal is played for five minutes before each transmission. Among the interesting programs from the Voice of Germany are the three-hour releases in German, intended for German immigrants in different parts of the world, and the English language program, "Newsfeed," designed for off-the-air relay by American medium-wave domestic broadcasters. Also worthy of note is Deutsche Welle's DX program for shortwave listeners, presented bilingually in German and English.

RADIO VOICE OF THE GOSPEL

One of the most powerful radio voices from the African continent is the religious station, Radio Voice of the Gospel. It is operated by the Lutheran World Federation in cooperation with councils of churches of many African and Asian countries. The site chosen, Addis Ababa, Ethiopia has the unique advantage of being the capital of an ancient Christian nation in the heart of an area otherwise largely non-Christian. Although the broadcasts are principally in African, Indian and other Asian languages, and in Arabic, many English and French language programs may be heard. All programs are introduced by a drumbeat interval signal, based upon Luther's hymn, "A Mighty Fortress is Our God," and the attractive "Elizabethan Serenade" played at the beginning and end of most transmissions. Some test transmissions are beamed to new target areas and usually consist of readings from the Bible.

Like the American-financed missionary stations in Ecuador, Panama, Puerto Rico, Honduras, Guatemala, Liberia and elsewhere, Radio Voice of the Gospel depends upon contributions and church offerings. These come mainly from Lutheran churches in Europe, especially Norway, Sweden and Germany.

RADIO HAVANA

Radio Habana, Cuba, as it is known in Spanish, is one of the listening favorites of the peons in Paraguay, Peru and Ecuador. Small wonder; as it is the only foreign radio station broadcasting in these countries' Indian languages, Guarani and Quechua, with the exception of occasional transmissions from Radio Moscow. No other broadcaster in the western hemisphere seems to consider it worthwhile to compete with these programs even though their great effectiveness is reported by Peace Corps workers and others in these isolated areas in the Andes.

Another language service in which Radio Havana has gained a large audience by default is the popular Creole service, announced by Haitian exiles in the Cuban capital. These Haitians read their poetry and speak in a style which appeals to the Haitian people. Radio Havana also has very successful programs in standard French, being one of the very few international broadcasters with strong signals in this language in the Americas. The French service has thousands of listeners in Haiti, Martinique, Guadelupe and French Guiana. Although Radio Havana broadcasts in only nine languages, very few in comparison to the other large-scale broadcasters, it has obviously chosen them carefully to appeal to certain audiences which would not otherwise tune in. The English language services from Radio Havana include programs of interest to listeners in the United States. The mailbag feature, "Post Office Box 7026," is a weekly highlight. Several of the English speaking announcers at Radio Havana are Canadians who understand North American listeners—something which Radio Peking and Radio Tirana, to take the most obvious examples, lack.

RADIO JAPAN

Broadcasting from Tokyo is Radio Japan, the overseas broadcasting service of N.H.K., Nippon Hoso Kyokai, The Japan Broadcasting Corporation. This station calls itself "The Voice of the East," and broadcasts in a growing number of languages—the total at writing being 23.

The interval signal, played by a music box, is quite distinctive. This interval signal plus the announcement, "This is Radio Japan," precedes all programs. Radio Japan operates on a basis rather similar to the BBC. It has a "General Service" which provides English language news on the hour, every hour, going later into the Japanese language. Each program is beamed in three directions on three suitable frequencies with three continents as target areas: North America, Asia and Europe. This is equivalent to the BBC World Service. On the other hand, there are regional services such as the European Service, the North American Service and the Middle East Service in appropriate languages.

Among international broadcasters, Radio Japan is considered by many listeners to be the most listener-oriented and positive in its attitude toward both the casual and steadfast listener. Radio Japan has an excellent understanding of and appreciation for the shortwave listener and offers a seemingly endless variety of attractive and artistic QSL cards. To its regular station reporters and monitors, Radio Japan sends small gifts and tokens of its appreciation. These, too, are artistic designs and include traditional dolls, purses, fans, prints and many other ornaments for the monitor's home and listening post.

RADIO MOSCOW

Even 40 years ago, Radio Moscow, then known as the Voice of the Comintern, was a powerful shortwave broadcasting station. Today, the voice of Radio Moscow practically dominates shortwave receivers around the world. The familiar interval signal of nine notes from the patriotic song, "My Broad Native Land," is the sound most

often heard at the hour and half-hour in and around the international shortwave broadcasting bands.

Due to the vastness of the Soviet Union, Radio Moscow achieves worldwide coverage without resorting to relay stations in Africa or the Americas. The Soviet Union is traversed by a multitude of landline feeders and the same program may be simultaneously radiated by broadcasting transmitters from a dozen different locations in Europe and Asia.

The North American service from Radio Moscow, beamed to the east coast and central sections of North America, is transmitted from Moscow, Serpukhov, Riga, Minsk, Kiev, Kursk and sometimes several other sites along the eastern part of the Soviet Union. The Pacific coast service is radiated from transmitting sites such as Komsomolsk, Khabarovsk, and Nikolaevsk na Amure.

Generally speaking, none of the transmitting sites in the Soviet Union is acknowledged in QSL cards as relays of Radio Moscow. However, the experienced shortwave listener may recognize the tone and fading quality of different transmitters and frequently can (with the aid of station listings) second guess the site of a particular Radio Moscow relay.

More languages are transmitted by Radio Moscow (over 65) than by any other shortwave broadcasting station. Although it has in recent years greatly increased its services to Africa, Asia and Latin America, Radio Moscow has not discontinued its programming in the languages of Europe and South America.

The most interesting and complex features of international broadcasting in the Soviet Union are the various stations in the republics of the USSR which nominally beam independent broadcasts to overseas listeners. This is in accord with the principle under which the Ukraine and Belorussia are members of the United Nations. These radio stations beam programs to their former citizens living in North and South America and Europe, in Ukrainian, Belorussian and English.

The North American service from Radio Kiev is broadcast over the same transmitters as Radio Moscow beaming to the same area; hence, once again, a QSL card verification from Radio Kiev is not necessarily a genuine confirmation of reception of a station sited in the Ukraine. Other stations beaming to overseas listeners, especially to those across the border, ethnically and linguistically related, include Radio Baku in Azerbaijan, Radio Dushanbe in Tadzhikistan, to which many Iranians look as the traditional seat of their culture and the home of the purest form of their language, and especially Radio Tashkent, from the capital of Uzbekistan in Soviet Central Asia. Radio Tashkent has gained a rather large audience in India and its English-language broadcasts are preferred to those of Radio Moscow by listeners in many countries.

RADIO NEDERLAND

Known as the Dutch World Broadcasting Service, Radio Nederland Wereldomroep, to give its full title, is an outgrowth of the Philips Radio Laboratories in Eindhoven, Holland, the pioneer shortwave broadcaster in Europe. The Dutch have a continuous record of world broadcasting going back some 10 years before the establishment of the first overseas services of the BBC, and almost 20 years before the Voice of America. Possibly due to this longevity, Radio Nederland has a devoted listening audience and a voice on shortwaves all out of proportion to the size of its home country.

As its English title rightly claims, Radio Nederland is truly a world broadcaster. The programming has always been attractive and is directed to all continents, in a wide variety of languages. Entertainment and information about Holland, and indeed about the whole of Europe, dominates the program content coupled with pleasant light and classical music. Regular concerts of the famed Concertgebouw Orchestra of Amsterdam are featured.

As this was being written, Radio Nederland was also the home of the oldest continuous (40 years) program on the air. Called the "Happy Station" program, it is broadcast several times each Sunday, under the genial compere, Edward Startz. Eddy, as he is known to his many listening friends, is probably the best known world radio personality. His program has been broadcast in two versions, an English language program with short features in such languages as Dutch, Swedish, French, German and Italian, plus occasional greetings to listeners in more exotic languages, and a Spanish program with Portuguese inserts. Totally non-propagandistic, the Happy Station program always lives up to its name with popular music, quizzes, short spotlights on Holland and calls to various listeners around the world. At times, the focus is on one particular country with the light music of the country played throughout the program. Among the traditional features of the program are Eddy's good and bad jokes—some which he has been repeating for four decades—plus sundry animal noises, redolent of the Dutch countryside.

Radio Nederland's new relay station is on the island of the flamingos, Bonaire, Netherlands Antilles. Broadcasting time to relay programs was originally purchased from Trans World Radio on the same island. Another relay station is planned for Madagascar, the Malagasy Republic in the Indian Ocean. This will provide excellent coverage for Radio Nederland's programs throughout the entire African, Asian and Australian areas.

Radio Nederland is in a unique position as a shortwave broadcaster since its parent country is not significantly involved in the cold war conflict. It can take a more detached attitude and has thus gained the confidence of its worldwide audience. Each of the language programming sections at Radio Nederland is independent and develops programs to appeal to audiences in specific target areas. The Arabic program, for example, has gained innumerable friends for Holland in the Middle East, while the Spanish service enjoys respect throughout Latin America, as well as Spain—both highly competitive international radio markets.

RADIO PEKING

With a musical interval signal of 10 notes, rather remarkably similar to that broadcast by Radio Moscow, Radio Peking has within a single decade become an important international broadcaster. Programs are beamed to all continents in over 40 different languages and recent estimates indicate that at peak hours more than 40 different transmitters, with power outputs of up to 240,000 watts, are in use. Many of these transmitters are of Soviet design and were installed during the period of close cooperation between the major Communist powers.

This composite picture is the only known photo of Radio Peking in North America. Radio engineers say that the four transmitters are similar in appearance to Soviet equipment, but quite likely they are of strictly Chinese manufacture. Each transmitter is probably rated at 120,000 watts and two are usually operated in parallel.

Eastfoto

In many ways, Radio Peking is not a source of disturbance inside the international broadcasting bands since Radio Peking operates without compunction—almost always—outside of the recognized bands. Although the service to certain areas, such as North America, is usually on frequencies within the bands, the transmissions to those regions where crowding of the international bands is greatest and where Radio Peking could otherwise be swamped by local interference, are almost always outside the bands. Shortwave listeners owning receivers which cover only the international bands, and who do not tune outside these bands, may not hear too much of Radio Peking. For those with general-coverage shortwave receivers, however, Radio Peking is an easy station to find by merely the most casual tuning. It will usually be almost the only broadcasting station to be heard in areas of the dial which are otherwise filled with non-broadcast services (aircraft, teleprinters, maritime, etc.). Some segments of the dial, such as the area between the standard frequency transmission of WWV on exactly 15 MHz and the lower edge of the 19-meter band at 15.1 MHz, are usually filled with Radio Peking signals in a great variety of languages at different times of the day.

Once a rather attractive station with pleasant Chinese music and request sessions, and many features of interest to listeners, Radio Peking has since the cultural revolution been totally transformed in spirit and now makes for very dull listening. This is especially true for the average Western-culture listener not overly familiar with Marxist ideology. The English language spoken over Radio Peking has a strange quality. It is somehow too perfect, even unnaturally so, and full of nineteenth century clichés, all of which lend it a Dic kensian air.

Missing also from Radio Peking are the Chinese language lessons and other imaginative programming. And, more important for some shortwave listeners, Radio Peking no longer appears to check the accuracy of reception reports, but sends forth a verification without time, date or frequency. Although the listener does not receive a true QSL card, he is liable to be dogged for the rest of his life by large parcels of propaganda, should he ever report reception to Radio Peking.

RADIO R.S.A.

Radio R.S.A., which stands for Radio Republic of South Africa, is another international broadcaster which has grown, in a short period of time, from being a minor adjunct to its domestic services to a full-scale, world-renowned station. Radio R.S.A. has numerous specially designed program services in English, French, German, Dutch, Afrikaans, Swahili and other languages.

The interval signal of Radio R.S.A. is a blending of an old South African folk tune and the call of a native bird. It is considered one of the most attractive of all the international broadcasting station identifications. The studios of Radio R.S.A. are in Johannesburg and the transmitters are in Bloemendaal, not far away.

An idea of the scope of Radio R.S.A. may be obtained from the fact that there are now four individually beamed, separate programs to the four main time zones of the United States and Canada, each designed to be heard at 6:30 p.m. local time.

Technically speaking, Radio R.S.A. is exceedingly well equipped and has organized an extraordinary monitoring panel of shortwave listeners who from their overseas locations are able to advise the station on necessary frequency changes. Also, the DX program broadcast each week is one of the most interesting heard on the air.

Among the more notable programs are special Afrikaans language lessons, Bantu tales graphically narrated and many interviews or current affairs featurettes. At certain times of the day, there are also relays from the domestic broadcasting services in English and Afrikaans. These

domestic services, including the popular commercial broadcaster, Springbok Radio, may also be received directly in the tropical broadcasting bands and are considered a great challenge to the shortwave listener. These services are also beamed to South West Africa on special frequencies.

RADIO NEW YORK WORLDWIDE

An oddity among shortwave broadcasters, Radio New York Worldwide, WNYW, is one of the very few English language speaking commercial shortwave stations. The present station is a mere shadow of its predecessor that had a glorious history. You can trace the lineage of WNYW back to one of the most renown shortwave broadcasters in the United States. It was originally known as "World Radio University," broadcasting from Boston, Massachusetts. From these words, plus an additional letter taken from the phrase, ". . . for the Listeners," the callsign of WRUL was chosen. As Radio Boston, WRUL was one of the original voices of freedom to the people of occupied Europe during the Second World War. It was WRUL that issued the warning to the Norwegian merchant fleet on the high seas that the German war machine has occupied Norway. One of the targets of the Germans was the shortwave transmitters of Norsk Rikskringkasting, Radio Norway, and this had been accomplished so swiftly that the announcers did not have the time to warn the Norwegian ships in international waters not to return to Norway, placing valuable shipping tonnage in the hands of the German occupation forces. WRUL went on the air in the Norwegian language and repeated constant warnings to Norwegian sea captains not to return to their homeland. As a result, most Norwegian ships

The American shortwave broadcasters devote much of their programming to playing music--jazz, pop, and even rock. Over WNYW the "Worldwide Hit Parade" program is handled by DJ Les Marshak.

sailed to British ports and were placed at the disposal of the Allies.

Today, Radio New York Worldwide is owned by the Church of Jesus Christ of Latter-Day Saints (Mormon). Unlike the two other non-governmental shortwave broadcasting stations in the United States (KGEI, San Francisco and WINB, Red Lion), WNYW broadcasts only a few hours of religious programming and devotes most of its hours to entertainment, news and features picked off the wires of the Columbia Broadcasting System.

RADIO FREE EUROPE

With its European headquarters in Munich, West Germany, Radio Free Europe is operated by the Radio Free Europe Committee, Inc., New York, N.Y. Despite first impressions, Radio Free Europe does not beam its broadcasts to the Soviet Union, but leaves that task to Radio Liberty—headquartered in the same west German city.

All of the transmissions from Radio Free Europe are directed to Bulgaria, Czechoslovakia, Hungary, Rumania and Poland. In each instance the broadcasts are in the languages of their respective countries. The three principal services are in Polish, Czechoslovak and Hungarian languages, each of which is on the air continuously except for a minor break in programming in the middle of the European night.

One of the techniques adopted by Radio Free Europe to ensure reception in the target areas is the use of two transmitter sites in West Germany plus a shortwave transmitting site in Portugal on the extreme westerly tip of Europe. Operating from the Portugal site, Radio Free Europe can make use of higher broadcasting frequencies in the 19-, 16- and 13-meter bands for partially interference-free reception in its central and east European target zones.

Radio Free Europe has always suffered from jamming. The intensity of jamming directed against Radio Free Europe broadcasts is a yardstick by which the current state of the cold war may be judged.

Even when the jamming of the Voice of America and the BBC had ceased, jamming of Radio Free Europe often continued unabated, or indeed was worsened, thanks to the jamming transmitters released from operations against the VoA and BBC.

Listeners in Europe find that the programming of Radio Free Europe is balanced. Research teams studying events in each target country, and in the Soviet Union and elsewhere, work in the Munich headquarters, producing incisive commentaries on domestic events in the countries of eastern Europe. Political coverage is supplemented by many popular programs of jazz and western music of all kinds. In recent years, the music programs from Radio Free Europe have been modernized and are winning a larger audience than ever among the younger generation in eastern Europe.

Despite the jamming, Radio Free Europe is frequently audible in North America, especially from the Portuguese transmitting site which operates on higher frequencies and at hours which permit reception across the north Atlantic.

VATICAN RADIO

Once a beleaguered, weak, outdated radio broadcasting station operating from very cramped quarters in the Vatican, Radio Vaticana, the Vatican Radio, is now installed in the enclave of Santa Maria di Galleria. Totally and completely surrounded by Italian territory, these new high powered transmitters were a gift from Catholics abroad, particularly those in Australia and New Zealand.

Aware like many other international broadcasting stations of the growing size of the transistorized radio receiver audience in Africa, Asia, and Latin America, the Vatican Radio now beams strong signals to Africa, India, China, Japan, the Philippines, and many other countries.

Numerous other programs have been introduced in the styles and languages that will appeal to non-western audiences. The English and French language programs have been enlivened and broadcasting in the languages of eastern Europe—once subjected to heavy jamming—has considerable popular appeal in those areas.

Most of the programs from Vatican Radio are of moderately short duration (15—30 minutes) and consist of news and features in an astonishing variety of languages, plus regular newscasts in Latin. In fact, a special panel of linguists has been employed by Vatican Radio to "invent" new Latin words to describe the features of modern life. The Latin newscasts bring a vivacity to Latin which it has not had for hundreds of years. During the Cold War, the Latin transmissions were a life-line to the Vatican for the Catholic clergy for whom listening to national-language broadcasts from the Vatican was either impossible (due to jamming) or forbidden, or both. Among the non-European languages now used by Vatican Radio are Arabic, Amharic, Chinese, Hindi, Japanese, Tamil and Malayan.

RARE STATIONS TO LOOK FOR

All of the above stations are among the loudest and most dominant on the shortwave dial. They are only a small sample of all possible loggings. As the listener broadens his horizons, many smaller and rarer stations will be his greatest challenges.

Some of the most interesting stations are:

In Europe:

Radio Kukesi and Radio Skodra, Albania

Emissor Regional dos Acores, Azores Islands

Dear Mr.R.E.Wood

We are glad to confirm your reception report on our programme transmitted on 15060 Kc/s dated Dec.2nd 1968.

Your further reception reports on our broadcasts will be welcome.

Yours sincerely,
Radio Peking

我们是毛主席的红小兵
北京广播电台

At the time of the cultural revolution, Radio Peking ceased to issue specific verifications, stating date, frequency, etc., and merely returned very unspecific QSL cards. Many QSL cards were issued in response to inquiries and totally erroneous reports. However, Radio Peking does occasionally verify reports as this example will obviously attest.

Suddeutscher Rundfunk, Bayerischer Rundfunk
Radio Bremen and RIAS (West Berlin), W. Germany
RAI Station, Caltanissetta (Sicily), Italy
Tromso station of NRK, Norway
Radio Clube Portugues and Radio Renascenca, Portugal

In Africa:
Radio CORDAC, Burundi
Three stations in the Cape Verde Islands
Fort-Lamy, Chad
Radio Gambia, Bathurst
Radio Ecuatorial, Bata, Rio Muni, Equatorial Guinea
ELBC, Liberian Broadcasting Corp., Liberia
Radio Pax, Beira, Mozambique
Hargeisa station, Somali Republic

In Asia:
The Voice of Righteousness, Taipai, Taiwan
Police Broadcasting Station, Taipai, Taiwan
Voice of the Chinese Air Force, Taipai, Taiwan
Radio Kashmir, Srinagar and Jammu
Christian Broadcasting System, Seoul, S. Korea
Radiodiffusion Nationale Lao, Vientiane, Laos
Maldive Islands Broadcasting Service
Many small stations in the Philippines
Voice of the United Nations Command, Okinawa
Thai Television Co., Bangkok, Thailand
Ministry of Education Broadcasting Station, Bangkok
Many other small stations in Thailand
V.T.V.N. local stations in Dalat and elsewhere, S. Vietnam

In the Pacific:
Radio Cook Islands, Rarotonga
Gilbert & Ellice Islands Broadcasting Service
Radio Villa, New Hebrides
Solomon Islands Broadcasting Service

In North America:
Grønlands Radio, Greenland
CBC station, St. John's Newfoundland
CBC station, Vancouver, B.C.

In Central America
Radio-Grande-Anse, Jeremie, Haiti
Radio Citadelle, Cap-Haitien, Haiti
O.R.T.F., Fort-de-France, Martinique
Casa de la Cultura, Guadalajara, Mexico
La Voz del Baru, David, Panama

In South America
Falkland Islands Broadcasting Service.
Radio Demerara, Guyana
Radio Encarnacion and other stations in Paraguay
S.B.C., Paramaribo, Surinam

CHAPTER 4

Languages and Station Identification

Even the accomplished linguist is faced with formidable problems when he tunes through the babble of the average international broadcasting band. The listener who has a certain familiarity with foreign languages has a distinct advantage in dealing with DX stations.

Within a short period of time, the more than casual listener will soon be able to distinguish one language from another and even understand certain words and phrases. In terms of actual use, here are the most important languages for the shortwave listener. Use this list as a guide in planning any future language courses or linguistic studies. Shortwave listening has been underrated as a means of gaining valuable experience in foreign languages.

ENGLISH

At least two-thirds of the major international broadcasters beam daily programs to North America in the English language. Among countries aiming programs in this direction are not only the leading west and east European countries, but many nations where English is a second language; South Africa, Japan, India, etc. In addition, there are numerous English language transmissions from the United Arab Republic, Ecuador, Thailand, China, Taiwan, Lebanon and many others.

Almost all transmissions to North America are on publicized frequencies and the listener should have little difficulty in identifying the station, although some

countries such as Thailand and Taiwan may not always provide good reception on the east coast; nor Denmark, Spain or Lebanon offer good reception on the west coast.

The English language may also be heard from stations that are not beaming to North America, but may be beaming from India to Australia, Australia to Japan, South Africa to Australia, etc. instead. Significantly for the DX'er, the English language is also used in the tropical domestic services of many African and Asian broadcasters, such as Ghana, Nigeria, Sierra Leona, India, Nepal and the Philippines.

The experienced listener will also soon learn to identify the various accents and dialects and be able to tell Australian

Sovfoto

Through the portals of Radio Moscow pass the greatest variety of shortwave broadcasters in the world. With transmissions in 79 different languages and dialects, Radio Moscow is second to none. The BBC broadcasts in 39 languages and the VoA has programs in about 35. When Radio Peking tripled its output (to 300 hours/week) in the Russian language, Radio Moscow retaliated by broadcasting 170 hours/week in Chinese.

English from South African English or the stereotyped form of English adopted by Radio Peking.

SPANISH

During the evening hours in North America most shortwave transmissions which are not in English will be in the Spanish language. In fact, there are several countries which do not beam shortwave transmissions to North America in English, but do beam Spanish language transmissions to Latin America. Among these countries are Jordan, Morocco and Syria.

Some communist broadcasters with only a few English language transmissions to North America soon find that they can gain a much larger audience, and an audience that is potentially more easily persuaded by their political philosophy, in the Spanish-speaking countries. But, of more importance to the DX'er, there are literally scores of domestic broadcasting stations inside the tropical bands and in the lower frequencies of the international bands in Latin America.

On a good winter evening the 60-meter band is alive in North America with stations broadcasting in Spanish. The Venezuelan stations will be dominant and can be heard almost every 10 kHz. Stations from Colombia, Honduras, Mexico, Dominican Republic, Guatemala, Ecuador and Peru will also be in the 60-meter band fighting for air space. These stations broadcast in no other language (except for some broadcasts in the Indian languages of Quechua and Aymara from Ecuador and Peru) and the listener must be prepared to identify the station in its native language. In some countries, such as Ecuador or Peru, this can be very difficult, since station identifications are few and far between and may be difficult to spot among the endless successions of Indian flute and guitar music.

From Venezuela, the station identification will be loud, clear and full of patriotism and national pride:

"Desde Caracas, Venezuela, Patria de El Libertador, transmite la Cadena Nacional, Radio Rumbos."

or:

"Radio Bolivar, en Ciudad Bolivar, Venezuela, Patria de El Libertador, Pais democratico de América y Puerto de Turismo en la América del Sur."

After you have learned to recognize and identify such grandiose announcements, you should be able to handle the briefer identifications from other countries.

FRENCH

The French language is of primary importance to the listener attempting to DX the African continent. Most shortwave stations in such countries as the Ivory Coast, Mauretania, Togo, Central African Republic and Senegal, transmit few or no programs in the English language, but devote large segments of their daily schedule to the French language. Where there are two networks or chains of stations in one country, one of the networks will usually be called the "International Chain" and will be broadcasting entirely in French.

French radio announcements and the general format of programming in all the French-speaking countries are standardized and stereotyped. Founded by and still partially dependent upon the O.R.T.F. in Paris, all of these stations will sound as though the studios were in Paris. The same principles apply to Tahiti, New Caledonia, the Afar and Issa Territory, the Comoro Islands, Martinique, French Guiana and other territories administered as overseas provinces of France.

The French territories overseas form an attractively homogenous unit and are an interesting challenge to the DX'er whose high-school-taught French is not entirely forgotten. Most listeners will find that with daily practice it will come back.

PORTUGUESE

The Portuguese language is not only the

English is a second language in many parts of the world. At Radio Japan the diction and enunciation of the announcers is distinctive and easily recognized. Listeners often find it possible to recognize announcers by voice alone—regardless of nationality. This group of announcers conduct the program "Listeners' Corner". They are (l. to r.) Jiro Hara, Ted Hondo, Miss Kaoru Kubo and Harumi Mochizuki.

native tongue of Portugal and its overseas provinces, but of one of the largest nations in the world, Brazil. There are many hundreds of broadcasting stations in Brazil and over a hundred shortwave outlets. These shortwave broadcasters are generally more powerful than any other commercial shortwave station in Latin America and many of them operate in the prime international shortwave broadcasting bands (31, 25, 19, and 16 meters). This means that the Brazilians are often heard at superior signal strengths and with great clarity. And, the first linguistic task that faces many DX'ers is to distinguish between Spanish and Portuguese, which is not at all difficult given a little practice.

Brazilian stations do not broadcast in the Spanish language and the listener should avoid at all costs writing reports to them in Spanish—even though they could understand him quite well if he did so! It is considered more "politic" to write reports to Brazilian stations in English, German, French and even in some areas in the Japanese language! The Brazilians are proud of their language and are naturally sensitive to any possibility that outsiders might not know that Portuguese is spoken in their country. It behooves the DX'er to familiarize himself with the rudiments of this language.

ARABIC

Another language of great importance in international radio is Arabic, the unmistakable, powerful language of many countries in Africa and the Middle East. Arabic is broadcast by many international stations beaming to this trouble spot where the distribution of multi-band transistorized

radio receivers has almost reached the saturation point.

The Middle East has always been highly radio conscious and the BBC began broadcasting in Arabic before it introduced services in any of the more common European languages.

Yemen and South Yemen broadcast exclusively in Arabic. Yemen has verified only one or two reception reports from foreign listeners, who had been enterprising enough to write their detailed reports in Arabic. Reports to Yemen in the English language are consistently ignored.

INDONESIAN

All domestic broadcasting in Indonesia is on shortwaves; the medium-wave band and the FM band are unknown quantities in this part of the world. Indonesia is highly decentralized with almost all of the regional shortwave broadcasting stations loosely affiliated with Radio Republik Indonesia, but only relaying an occasional news broadcast from the central station in Djakarta. Almost all Indonesian regional station programs are of local origination and the local station identification may be heard at regular intervals.

Basic Indonesian is a language which most people born and raised to speak English find clear and easy to understand. Indonesian is also the only Asian language with which the average shortwave listener need have any depth of familiarity—although, obviously, a knowledge of the other Asian languages always helps.

WORDS TO LISTEN FOR

Other than English, French, Spanish, Portuguese, Arabic and Indonesian, there are no languages of very great importance in international radio. The listener should, however, be able to identify such distinctive languages as German, Dutch, Russian, Italian, Rumanian, Swahili, Persian, Hindi/Urdu, Turkish, Standard Chinese, Cantonese, Thai and Japanese. The words to listen for in attempting to make a station identification are as follows:

English: "This is . . .," "You are listening to . . .," "You are tuned to . . .,"

From its headquarters in Washington, D.C., the VoA prepares program material in all 23 of the principal languages, plus supplementary material in another dozen. This is the script preparation room of the Rumanian VoA service. A tackboard in the background is covered with postcards from listeners.

Spanish: "Aquí . . .," "Esta es . . .," "Escuchan . . .," "Habla . . ."
French: "Ici . . .," "Vous écoutez . . .," "Vous êtes à l'écoute de . . ."
Portuguese: "Aqui . . .," "Fala-vos . . .," "Fala . . .," "Estao ouvindo . . ."
Arabic: "Huna . . .," "Hadha . . ."
Indonesian: "Inilah . . .," "Disini . . ."
German: "Hier spricht . . .," "Hier ist . . ."
Dutch: "Hier is . . .," "U luistert naar . . ."
Russian: "Govorit . . ."
Italian: "Qui . . .," "Parla . . ."
Rumanian: "Aici . . ."
Swahili: "Hii ni . . .," "Hapa . . ."
Persian: "Inja . . ."
Hindi/Urdu: "Yeh . . . hai"
Turkish: "Burasi . . ."
Standard Chinese: ". . . po tien tai"
Cantonese: ". . . bor deen toy"
Thai: "Thini . . ."
Japanese: "Kochirawa . . ."

Of the four major international broadcasters (BBC, Radio Moscow, Radio Peking and the VoA), a vast number of hours are spent in transmitting other than the native tongue. Radio Moscow broadcasts sometime each week in 79 different languages

Not every broadcaster has an extended foreign language service for the purposes of propaganda. Several dozen countries broadcast in languages other than their native tongue as a "public service". This would be particularly true of Holland, Switzerland, Belgium, etc. It could even be said of the BBC, and to some extent, of the VoA. These announcers (Maria-Dolores Anton and Jaime Ortega) are reading from a record album jacket on the Concierto de Jueves show of Switzerland Calling.

and the BBC broadcasts in 39 languages. By contrast, the VoA has programming in about 35 languages.

All four of the major international broadcasters have programs in the following languages:

English	Arabic
French	Turkish
German	Persian
Spanish	Hindi
Portuguese	Tamil
Italian	Swahili
Russian	Standard Chinese
Polish	Japanese
Czech	Thai
Serbo-Croatian	Vietnamese
Rumanian	Indonesian
	Burmese

In addition, three of the four major broadcasters have at least weekly services in the following additional languages:

Greek	Urdu
Albanian	Bengali
Bulgarian	Cambodian
Slovak	Cantonese
Hungarian	Hausa
Slovenian	Korean
	Laotian

Two of the four international broadcasters also have services in:

Finnish	Sinhala
Somali	Malay
	Mongolian

INTERVAL SIGNALS

Very few shortwave listeners are accomplished linguists, or even have the barest understanding of a language other than their native tongue. Practically all shortwave broadcasters have adopted a musical interval signal. or adaptation thereof, which is played for five to ten minutes immediately prior to the beginning of each language or program service. The interval signals are an invaluable aid to instant identification and permit the listener to correctly tune in the station before the programming begins.

Many of these signals are repeated at frequent intervals. Some broadcasting stations play the interval signals at slow speed with long pauses prior to the beginning of a particular program. When the program is about to commence, the "frequency" of the interval signal is stepped up and played in rapid succession. This is a technique used by Radio Moscow, Radio Prague and Radio Peking, among others. Many of the musical programs from Radio Moscow are not given voice identifications, but are merely identified by the playing of the interval signal. Thus, these programs may attract the maximum possible audience; one not limited to a particular language group.

Different program formats result in different interval signal usage. The BBC World Service, for example, which is on the air nearly 24 hours a day, in English, does not play long stretches of interval signal during its regular programming. But when a new frequency is being added to those frequencies in use, the new transmitter may broadcast the "B-B-C" or "Bow Bells" interval signals for several minutes before joining the Service.

A few of the most familiar interval signals the listener should hear and immediately recognize are as follows:

Voice of America. Variations of the theme of "Yankee Doodle Dandy." Excerpts from "Columbia, the Gem of the Ocean" have been discontinued.

BBC. The musical notes "B-B-C;" Bow bells from a church in London; on BBC Europe, the first six notes of Beethoven's Fifth Symphony.

Radio Moscow. Foreign Service, 10 electronic notes from the melody "O my broad native land" ("Shiroka strana moya rodnaya"); Home Service ("Mayak", the "lighthouse"), 10 notes from "Midnight in Moscow."

Radio Peking. The first bars of the song, "The East is Red."

CBC, Canada. The first four notes of the national anthem, "O Canada."

Radio New Zealand. The native bird, the Bell Bird, chirping.

Austrian Radio, Vienna. The famous Strauss melody, "The Blue Danube."

Kol Yisrael, Israel. Trumpets playing the first nine notes of the chorus of the national anthem, "Hatikvah," followed by a drum roll.

Radio Australia. The unofficial national song, "Waltzing Matilda", played by a music box.

Vatican Radio. The melody "Christus Vincit" played on the celeste.

All India Radio, Delhi. A typical Indian melody played on three national instruments.

Radio RSA, South Africa. The chirps of a South African bird, the bokmakierie, superimposed upon the guitar melody, "Ver in die Wêreld, Kittie," "Far, far into the wide world, Kitty."

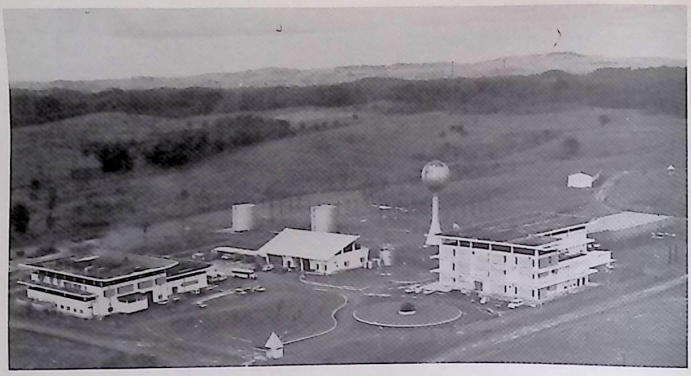
CHAPTER 5

Broadcasting Around the World

The financing and governmental control of radio broadcasting around the world differs from country to country. Few countries apply as loose and free a control of broadcasting as the Federal Communications Commission in the U.S.A. and the Department of Transport in Canada. Rather than consider broadcasting (and the reception of broadcasting stations) the "right" of all people, most governments consider broadcasting the "right" of government.

Some governmental policies regarding broadcasting are holdovers from the 1930's and admittedly archaic. Some policies are obviously an intent to suppress the flow of information and to keep the inhabitants of these countries more-or-less in ignorance. Since there is no general rule regarding broadcast policies and governmental control, the following continent by continent analysis may shed some light on the problems facing the shortwave listeners around the world.

Europe. In Europe, each country typically has a strong national broadcasting organization. In eastern Europe, and in a few west European countries, such as France and Portugal, these organizations are under direct governmental control and are administered by special "departments" or state committees. In the democratic countries of western Europe, the broad-



In order to reach the African millions, three of the four major shortwave broadcasters have established relay transmitting facilities on or near the African continent. The VoA naturally chose the friendly nation of Liberia. From Monrovia, the VoA beams Arabic, Swahili and English language programs to north, central and south Africa. In this 1969 photo, the offices and transmitters are in the building to the right, power generation in the building on the left. The buses are for commutation.

casting organizations are usually controlled by governing boards that attempt to represent the different walks of life and sectors of public opinion. Many governments finance these governing boards through the levy of receiving equipment license fees. The United States and Canada are among the very few countries around the world in which it is legal to receive radio or TV broadcast transmissions without payment of a license fee.

License fees are usually payable on an annual basis and the funds obtained go into the state treasury, or on occasion, directly to the national radio broadcasting organization. In those countries levying a license fee, the financial base of radio broadcasting operations is not "commercial". However, in a few European countries, the broadcasting of commercials is now permitted during limited hours and on a very limited, carefully regulated scale.

Countries with strictly limited commercial broadcasting include West Germany and Ireland. Examples of countries with totally non-commercial radio broadcasting are Sweden and Switzerland.

In the German Federal Republic, although there is a national network (the Deutschlandfunk), the majority of broadcasting is regionalized among the Länder or states, each of which has, in whole or part, its own broadcasting organization. These organizations may be either non-commercial or partially commercial. Three of these stations also have shortwave broadcasting outlets. They are operated by the Länder of Bavaria, Baden-Württemberg, and Bremen.

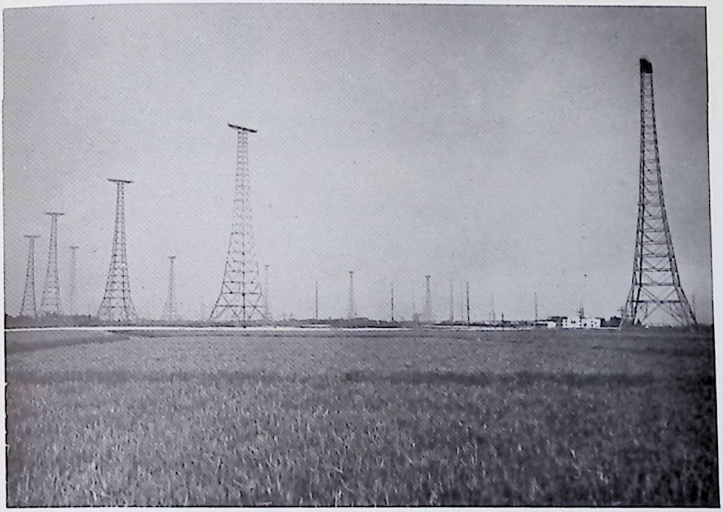
In Spain, there is a plethora of small commercially operated broadcasting stations that are loosely organized into networks or national chains. These operated in the past on shortwave, but are now moving en masse to the FM broadcasting band which is obviously more suitable for local broadcasting. At present, large numbers of these Spanish stations are operating

on the medium waves (AM broadcasting band). The Spanish broadcasting system is somewhat different than that of the rest of Europe and is more akin to that in Latin America which will be discussed later. In certain other countries, such as Portugal and Greece, smaller commercial radio stations are also in operation.

More important in the commercial broadcasting field in Europe, however, are the stations that are sited in the smaller countries with full-scale commercial programming in the languages of their larger neighbors. These broadcasting stations have become important sources of revenue to their respective governments and are contracted out to private commercial radio broadcasting companies.

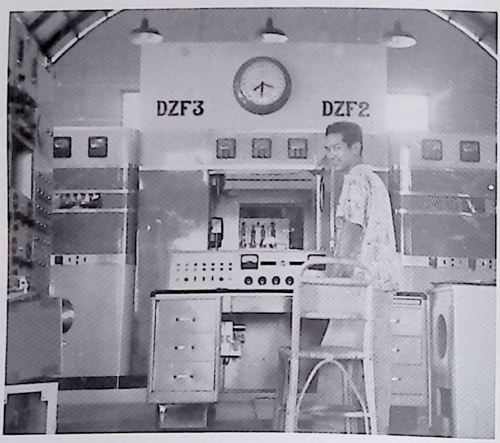
Typical of these entrepreneurs that make a lot of noise from a small country are Radio Luxembourg with its vast audience among the English, French, Germans and Dutch; Radio Monte Carlo, originally broadcasting only in French, but now looking to the new prosperous Italian market; and two stations from the Principality of Andorra: Radio Andorra, with transmissions beamed to France and Spain, and Radio-Sud, closely linked to Radio Monte Carlo and supplementing that station's coverage of France.

Two other small European countries, Liechtenstein and San Marino, have looked with envy for many years at the success of their contemporaries; and from time to time plans have been drawn for radio



Radio Japan beams programs in 22 languages from this site in Yamata. The eleven towers support curtain arrays that are basically aimed in only three different directions—northeast to North America, southwest to Southeast Asia and north northwest to Europe. Radio Japan exhibits great interest in SWL's.

broadcasting commercial enterprises. All of these plans sooner or later flounder, however, when the Swiss authorities, who control customs and the borders in Liechtenstein confiscate the radio transmitting equipment. The Italians, who totally surround San Marino, likewise ensure that no commercial radio broadcasting activities are likely to take place from the world's oldest republic.



One of the most active broadcasters in Asia is the Far East Broadcasting Company, Manila. These two 50,000-watt transmitters carry FEBC programs in the 25 and 19 meter bands. Using about 20 different languages and dialects, the FEBC concentrates on news and religious programs to mainland China.

Africa. Radio broadcasting stations in the former African colonies still bear the stamp of their models in Europe. Most African countries have broadcasting corporations or organizations resembling the BBC, where many of their announcers and engineers were trained, or the O.R.T.F., Paris, which still guides and aids African radio broadcasting through the OCORA organization.

In the Portuguese overseas provinces in Africa, especially Angola, broadcasting stations are organized and operated as cooperatives or clubs paid for by voluntary contributions from listeners. The station is usually operated by part-time volunteer workers and a small paid staff. These stations bear the name "Rádio Clube . . ." For instance, there is "Rádio Clube de Angola" in the capital city, Luanda, and "Rádio Clube de Benguela", "Rádio Clube de Bié", and many others in the smaller outlying towns.

On the island of Sao Tomé, "Rádio Clube de Sao Tomé" operates as a relay for Radio Portugal, although it occasionally originates its own programming. These are all popular, partially commercial radio broadcasting stations. The "Rádio Clube de Mozambique" in Portuguese East Africa is in a better position financially since it

is the favorite broadcasting station of many inhabitants in the Republic of South Africa and adjacent countries. Its programs, in English and Afrikaans, are handled by a South African company and are totally commercial with popular music and many ads for items familiar to American radio listeners. Its position is strengthened by the simple fact that South Africa is the only technologically advanced country in the world without a television service.

Another group of broadcasting stations in Africa are the religious or missionary stations. These include ELWA in Monrovia, Liberia, the oldest missionary station in the eastern hemisphere; Radio Cordac in Bujumbura, Burundi, radio station ZNF4V, operated by the Catholic schools of Lesotho; and Radio Voice of the Gospel in Addis Ababa, Ethiopia. The relay stations, or broadcasting stations affiliated with European or American international broadcasters are discussed later.

Asia. The pattern seen in African radio broadcasting is repeated throughout some of the Asian continent. Generally speaking, each country has its own national broadcasting organization and certain of the smaller countries broadcast and beam commercially oriented programs to the larger adjacent nations. These smaller nations include Ceylon and the Maldive Islands whose main audience is in India. At one time, Radio Goa played a similar role, but this has now been reduced to the status of another regional station of All India Radio. A grandiose scheme for an international broadcasting station in Nepal was announced some years ago, but to this writer's knowledge it has never come to fruition.

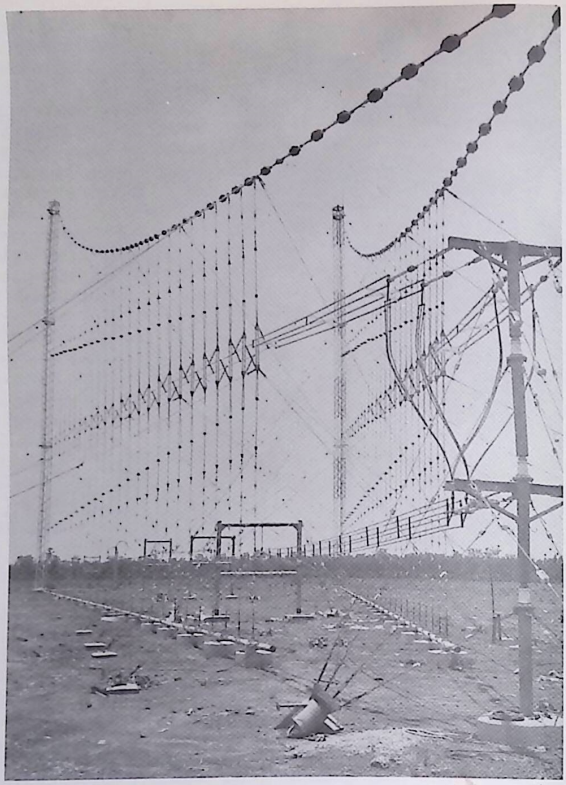
In the Pacific coastal areas there are many commercial, independent or semi-independent radio stations. In Japan, for example, NHK (Nippon Hoso Kyokai), the national broadcasting network, is noncommercial, but there are dozens of commercial stations, including one operating on shortwave. The identical situation is seen in the Philippine Islands. In the Philippines, many stations are operated by trade unions, universities and other organizations directly related to the populace.

In Thailand there is an unusually large number of radio stations operating under various ownerships. Many of the radio stations are owned by municipalities, ministries, universities or even particular branches of the Thai armed forces. One station is operated under the personal supervision of the King and has studios in the royal palace. It is very popular with Bangkok listeners as it often plays the King's own jazz compositions.

There are several missionary stations in Asia and most of them operate under the control of the Far East Broadcasting Company, Manila. The Philippine outlet of the FEBC is known as the "Call of the Orient". On Taiwan, there is a station signing with the slogan, "The Voice of Righteousness". Also on Taiwan are several broadcasting stations operated by the various armed services, as well as an American Armed Forces Network station. And, as in the other continents, there are important relay transmitters.

Little is known of the broadcasting activities in the People's Republic of China. It is obvious, however, that broadcasting is under stringent regulations and that much of the information originating in Peking and directed toward the populace is relayed over a vast network of local and provincial stations. Shortwave broadcasting in Communist China is also considered to be of major importance and is to a great extent remarkably similar to the shortwave activities of Radio Moscow.

The Pacific. The Australian Broadcasting Commission and the New Zealand Broadcasting Corporation are both modeled after the BBC. On a much smaller scale, broadcasting organizations similar to the BBC exist in Fiji (Fiji Broadcasting Commission), Solomon Islands (Solomon Islands Broadcasting Service), Tonga (Tonga Broadcasting Commission), and the



The imposing modern beam antenna was recently put into service by Radio Australia. The design is that of a log periodic which is similar to some multi-element TV antennas. The radiating elements are vertical and are fed in the center. Off to the right of this photo are massive counter weights and pulley guide blocks for the two main supporting cables.

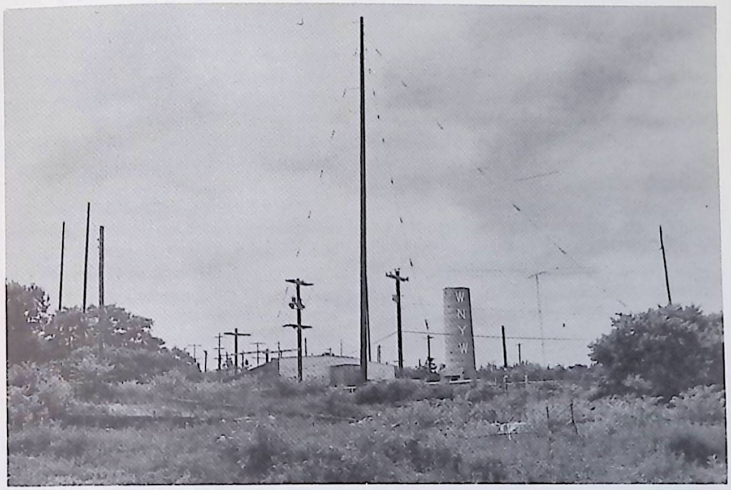
Gilbert and Ellice Islands (Gilbert and Ellice Islands Broadcasting Service). Many of these stations relay programs and newscasts from the BBC. They may also relay newscasts from Radio Australia and Radio New Zealand.

In the French-speaking islands of Tahiti and New Caledonia, the broadcasting services are operated as branches of the O.R.T.F. There is also a joint Anglo-French condominium administration in Vila, New Hebrides, south Pacific.

Numerous low-power shortwave stations have been established in recent years in the Australian-administered territories of Papua and New Guinea. These stations form an interesting challenge for the listener to attempt to hear and verify reception. The stations are trying to inform some of the world's most primitive people of their gradual evolution into the twentieth century. The Australians hope that radio broadcasting (many of the transmissions are educational) will bring the inhabitants of Papua and New Guinea a sense of nationhood and future independence. Although operated by the Australian government, almost all of these radio stations are staffed by local inhabitants. The Australian station at Port Moresby is a training center for radio station announcers.

Commercial radio has not made a great dent in broadcasting in the south Pacific. Practically all of the stations are dedicated to public service, although some commercial announcements will be heard, especially from Radio Fiji.

North America. Shortwave broadcasting in Canada is dominated by the stations operated under the charter of the Canadian Broadcasting Corporation. The CBC is quite responsive to the whims and vicissitudes of the Canadian government. Chartered under a public law, the owners of the CBC are the taxpayers of Canada. However, the great majority of Canadian stations are commercial and to a large extent privately owned and operated. A half-dozen of the commercial stations operate with



The theme of this photo could be - - it's not much to look at. From a transmitting site in the very heart of Scituate, Massachusetts, WNYW uses rhombic antennas to beam to Europe and Latin America. The site was originally used by renowned WRUL. Despite the lack of opulence, the signal of WNYW is strong in both target areas. There is a rumor that WNYW will soon move.

low power in the 49-meter international band.

To the northeast of Canada is the Danish Province of Greenland. Broadcasting here is a state operated function and is in the Greenlandic and Danish languages. The transmissions from Godthab are of low power and rarely heard in Europe or the U.S.A.

Shortwave broadcasting in the United States proper is dominated by the multiple transmitters of the Voice of America. The Armed Forces Radio and Television Service does not have its own transmitting equipment, but uses the facilities of the Voice of America. Much the same situation applies to the United Nations. When the General Assembly and Security Council are in session, the meetings are broadcast on various frequencies to Europe, Africa and Latin America.

Only three private semi-commercial shortwave broadcasting stations operate from the U.S.A. One of them, Radio New York Worldwide, is said to be owned and operated by the Mormon Church. Within the past year this station has started re-broadcasting many programs picked off the Columbia Broadcasting System AM network.

The World International Broadcasters (WINB) and international broadcasting station KGEI are considered religious stations. The former station is on the air about 40 hours a week and is being subjected to considerable FCC pressure to broaden its programming.

Central America. The islands of the Caribbean are a hodgepodge of shortwave broadcasting organizations, policies and facilities. They range from the absence of any shortwave facilities (Puerto Rico) to the super high power relay transmitters of Trans World Radio and Radio Nederland in Bonaire.

The Windward Islands, long a British possession, has a broadcasting organization modeled upon the BBC with operations on an international scale. Guadeloupe and Martinique have broadcasting facilities that are operating branches of the French O.R.T.F.

In all of the other Spanish-speaking Latin American countries there are large numbers of small commercially oriented broadcasting stations, operating mainly in the tropical broadcasting bands. Most Latin American countries will also have at least one government broadcasting station, or those that have none will usually invest in broadcasting stations that are educational and operated by the appropriate government ministry, especially the Ministry of Education. Such is the position, for example, in Mexico.

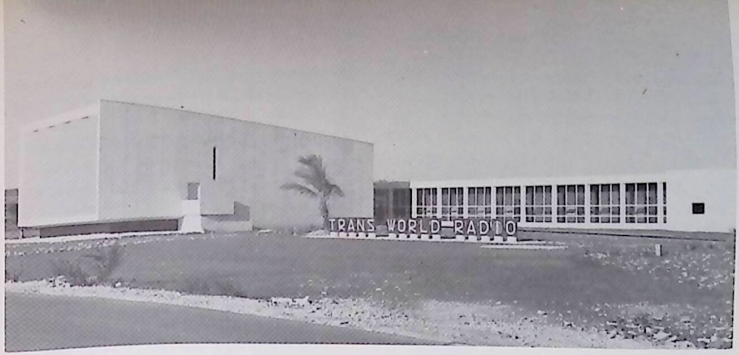
Cuba, at one time one of the most flamboyant and progressive countries for shortwave broadcasting has taken a back seat. With the Castro regime, all broadcasting from Cuba is under stringent government control.

Haiti shares the Latin American style of haphazard broadcasting, although the language here is, of course, French rather than Spanish. In Haiti, also, the missionary stations are of some importance, as they are in such other Caribbean nations as Guatemala and Honduras.

South America. Shortwave broadcasting from South America constitutes a fascinating challenge to shortwave listeners. There is a great variety of stations and hundreds of them are commercially oriented. Some of the commercial broadcasters, such as the Brazilians, feature extensive programming and very high-powered equipment. In fact, country for country, there are more shortwave broadcasting stations in South America (particularly Colombia, Ecuador, Brazil, Peru and Venezuela) than anywhere else in the world.

Very important missionary stations are located in Ecuador and Bolivia and there are stations operated by the Catholic Church in almost every country, including Brazil, Bolivia and Colombia.

The Relay Stations. There are hundreds



Trans World Radio is one of the five major missionary broadcasters operating shortwave transmitters. This new building was recently opened in Bonaire, Netherlands Antilles. Although an active shortwave broadcaster, TWR is equally well known for its 500,000 watt medium-wave transmitter operating on 800 kHz.

of broadcasting stations in daily operation in the international shortwave bands. Only a few of these may be placed in the category of major international broadcasters. These few stations take great care to beam programs to their listeners in various parts of the world on appropriate frequencies, in appropriate languages and at appropriate times of the day.

To strengthen their international position, many of these broadcasters headquartered in one country have established relay transmitters in other parts of the world. The relay transmitter ensures high quality shortwave reception in target areas and simultaneously permits operation on frequencies which would not be permissible or practical from the home country. The best known example of a broadcaster operating primarily from relay bases abroad is the Voice of America. Similar relaying setups are used by Radio Nederland, BBC, Deutsche Welle, etc. In the high water mark of its colonial days, Belgium operated its own international broadcasting service from the Congo rather than from Belgium.

The use of relay transmitters in the tropical zone has many advantages. Signals between Europe and North America, or between Asia and North America on the one hand, and between Australia and South Africa, or South America and Australia on the other hand are forced to follow a path across the polar or sub-polar zones. This path—literally the shortest distance between two points—is due to the curvature of the earth. Such trans-polar signals pass through a zone in which the ionosphere, on which normal shortwave propagation depends, can be highly disturbed. This disturbance in the ionosphere leads to irregularities in reception including fade outs, signal absorption, and what is commonly referred to as "polar flutter." Generally speaking, the voice quality of all signals passing through the sub-polar zones is rather poor.

Direction, and not distance, is often one of the more important factors which must be taken into account in the calculation of the DX value of catching rare stations. For instance, in Hawaii, the European signals are always disturbed and fluttery. The distance involved is only about 7000 miles. On the other side of the earth—12,000 miles away—is South Africa and signals from this distant country may be

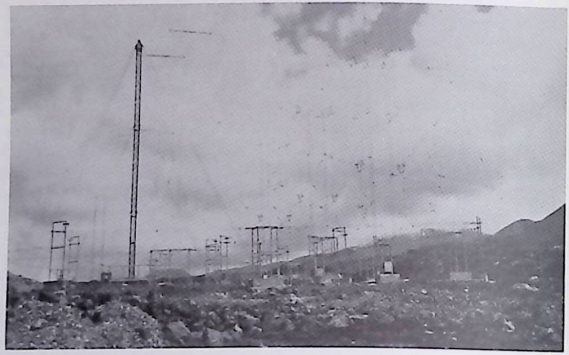
heard on a great variety of frequencies and with excellent signal strengths and little fading since at no time does the signal along this path cross the sub-polar region.

From Hawaii, it's reasonably easy to hear some of the smaller southern African countries such as Botswana and Rhodesia, while the low-powered transmitters from Andorra, Greece and the Azores are among the most challenging DX catches for a listener in the north Pacific area.

Similarly, a challenge for a listener in the eastern part of North America would be to hear stations over the North Pole and coming from central and south Asia, such as Nepal, Burma, Laos and the Maldive Islands.

From a relay transmitter site located in the tropical zone—within 20°-30° of latitude north or south of the equator—there is no problem of trans-polar propagation to most parts of the world. Some of the earliest European stations to be established in the tropics were the Dutch station at Batavia in the East Indies, now Djakarta, Indonesia; Radio Brazzaville, established by General Charles deGaulle as the Voice of Free France, operating from the French Congo during the Second World War; and the Belgian station in Leopoldville in the Congo, now the Kinshasa station of Radiodiffusion-Television Congolaise.

The above early relay stations were operated as independent broadcasters and were not very closely connected to their European affiliates. Today, the main relay stations in Africa, Central America, the mid-Atlantic and the Indian Ocean, do not usually produce their own programs, but merely receive signals from their parent stations and transmit them at appropriate times and on frequencies suited to the relay's audience.



The relay transmitting site for Africa and South America operated by the British Broadcasting Corporation is on Ascension Island. As the mountains, clouds and rocks make it appear, this is not the most hospitable site in the world. However, for purposes of radio wave propagation, the choice of Ascension Island for this Marconi equipment could not have been better.

The Relay Site Picture—1970. The following is a list of some of the broadcasters and the locations of their overseas relays. In addition to the transmitters in

operation, mention is made in the list of plans for expanding these activities.

BBC, British Broadcasting Corporation
Headquarters: London
Domestic Transmitters: 4 locations in England
Overseas Relays: Ascension Island, Limassol, Cyprus and Tebrau, Malaysia

Deutsche Welle, Voice of Germany
Headquarters: Cologne
Domestic Transmitters: Jülich, West Germany (another site planned)
Overseas Relay: Kigali, Rwanda
(under construction): Lisbon, Portugal
(planned): El Salvador and an Indian Ocean site

O.R.T.F., Office de Radiodiffusion-Television Francais
Headquarters: Paris
Domestic Transmitters: 2 locations in France
Overseas Relay: Brazzaville, Congo Republic
(planned): Cayenne, French Guiana and Noumea, New Caledonia

Radio Moscow
Headquarters: Moscow
Domestic Transmitters: Numerous locations in the U.S.S.R.
Relays: Leipzig, East Germany and Sofia, Bulgaria

Radio Nederland Wereldomroep
Headquarters: Hilversum
Domestic Transmitters: Lopik, Holland
Overseas Relay: Bonaire, Netherlands Antilles
(planned): Madagascar

Radio Peking
Headquarters: Peking
Domestic Transmitters: Various locations in mainland China
Overseas Relay: Tirana, Albania

Voice of America
Headquarters: Washington, D.C.
Domestic Transmitters: Greenville, North Carolina; Bethany, Ohio; Dixon, California; Delano, California
Overseas Relays: Tangier, Morocco; Monrovia, Liberia; Wooferton, Great Britain; Munich, West Germany; Colombo, Ceylon; Okinawa, Ryukyu Islands; Rhodes, Greece; Poro, Philippines, Tinang, Philippines; Honolulu, Hawaii (on standby)

Are You Out There? The policies of the various international broadcasters regarding the use of their overseas relays varies greatly. Radio Moscow and Radio Peking publish no information on their relay stations. All details concerning these activities must be derived from empirical observations by the listeners. The thing to listen for is called the "relay sound." The relay sound results from the loss of audio quality when the signal from the parent station is received and retransmitted—regardless of how sophisticated the receiving equipment is in use at the relay station. In fact, interference, either co-channel or in the form of side band splatter may sometimes be picked up along with the required signal and casually rebroadcast. In this way, the careful listener by checking the various channels from the parent station may not only identify the fact that he is listening to a relay, but may even be able to determine the frequency being relayed. It is interesting to compare the audio quality of different relay broadcasters, especially such similar stations as Radio Nederland Bonaire and the BBC on Ascension Island.

Generally speaking, off-the-air relays are now outmoded. Far better sound

quality can be achieved by relaying the desired program through undersea cables, or other non-broadcast means. Relay stations use many pre-recorded tapes to ensure good reproduction of material other than datable news. New techniques for supplying programs to the relay sites are just coming into practice and several international broadcasters now use single-sideband feeder transmitters outside the broadcasting bands.

The multi-band very cheap transistorized receivers found in the homes of millions of Africans, Asians and Latin Americans are not usually the ideal product in terms of sensitivity and selectivity. Frequently, these receivers cannot make a clear-cut separation between adjacent signals in the same international shortwave band. Worst of all, few of these receivers cover the full range of international broadcasting frequencies. The usual receiver is limited to the principal international bands, say 49, 41, 31, and 25 meters. Some receivers with a view toward coverage of tropical band stations may only embrace the 75-, 49-, and 41-meter bands. All of this means that the international broadcaster wishing to obtain an audience in these remote areas cannot always use the frequency which, in theory, would provide the best reception. This is particularly true in the case of broadcasting over very long distances and where the high frequency bands (25, 19, 16, and 13 meters) might give excellent reception, but where the African listener is equipped to receive only in the bands closest to his own 60-meter tropical band. Obviously, given a chance to operate a relay base in Africa (say at Brazzaville), or off the African coast (say, on Ascension Island), the 41- and 49-meter bands can provide local quality signals.

All of this, however, is part of an escalation typical of the radio broadcasting war in which both the older European nations and the newly emerging African and Asian states are today engaged.

CHAPTER 6

Jamming— The Scourge of Broadcasting

As you rotate your dial up and down the international broadcasting bands you will tune across a variety of raucous noises that are obviously not broadcasting stations or radio signals from outside of the bands that have drifted in frequency. These raucous-sounding signals are being generated for a negative purpose—jamming.

The international jamming of broadcast signals is almost as old as radio broadcasting itself. The first concerted efforts at jamming were undertaken by Germany's Third Reich against the BBC and other Allied broadcasting stations during World War II. The techniques were by today's standards unprofessional and largely ineffective. Jamming became a serious problem during the so-called Cold War. At that time the Soviet Union undertook a campaign of great ferocity to render all western Europe broadcasts inaudible within the borders of the USSR, and in all of the satellite nations then under Soviet control. The principal sufferers from the jamming were the Voice of America, Radio Free Europe, Radio Liberation, BBC, Canadian Broadcasting Corporation, Vatican Radio, Radio Nacional de Espana, and the Voice of Israel.

Jamming - - How It's Done. The methods of jamming are complex, but described simply they involve the radiation of a powerful radio signal on the frequency of the station to be rendered inaudible. The interfering signal will be heavily (or over) modulated with a tape recording of a diesel

engine, piercing whistle, or even a distorted broadcast signal. The jamming may also be music played backwards on a tape recorder at double, or half speed, or a variety of any other unpleasant noises.

Technically, one transmitter in one location operating on the frequency to be jammed will not suffice. A large network of jamming stations is required. The problems are many, due to skip distance effects, which may render the jammer audible only thousands of miles from its transmitter site. In fact, the only way to insure perfect radio signal jamming would be to install a jamming transmitter of the same power and with an identical antenna, operating on the same frequency, and from near the same site as the station to be jammed.

Jamming may be reduced at the receiver by the use of highly directional antennas. But generally speaking, such antennas are beyond the resources of the average listener. Counteracting jamming may also be made more difficult by transmitting the jamming signal from various sites and on multiple parallel frequencies. Obviously, if a broadcasting station is audible in its target area on even one of a dozen frequencies in use, jamming on all other 11 frequencies is useless and wasteful. Indeed, useless and wasteful, are the best words to describe jamming which often produces interference even on the frequencies used for broadcasting by the countries engaged in generating the jamming signals. For example, the Soviet Union jammers directed against Radio Liberty often interfere with broadcasts from Radio Moscow beamed to the western countries.

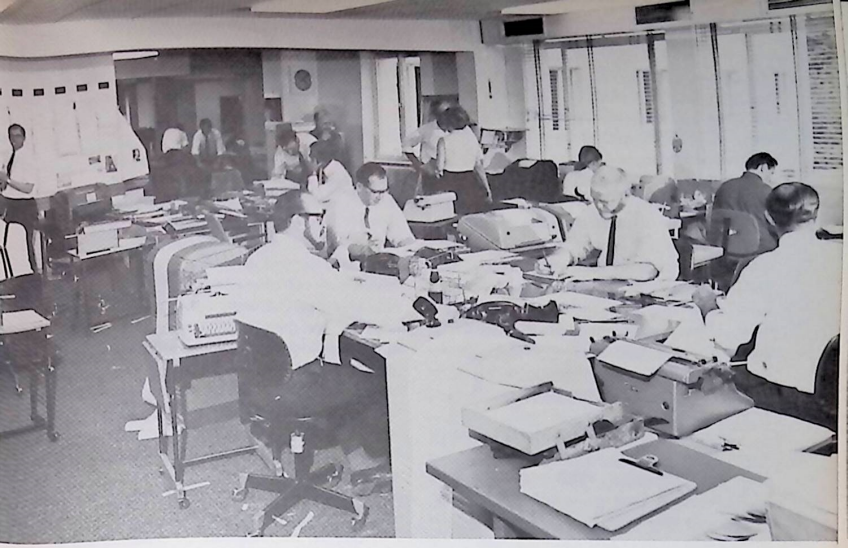
Although no one knows for sure, authorities speculate that there are at least 2000 full-time jamming transmitters in the Soviet Union! Not all of these transmitters are active against shortwave broadcasts since many are used to jam frequencies in the medium wave bands.

The Politics of Jamming. Jamming of the BBC and the Voice of America ceased completely in Eastern Europe during the period 1960-68. The broadcasting stations that do not speak as voices of their respective "host" governments—Radio Free Europe and Radio Liberty—are, however, unaffected by any temporary detente between western governemnts and the Communist countries. Of the two, Radio Liberty, beamed towards the Soviet Union, is the major target of all jamming. Even in these days of considerable relaxation in Cold War tension, jamming of Radio Liberty has not ceased.

During the Hungarian revolt in 1956 and the Polish demonstrations of the same year, some of the most determined attacks made by the populace were against sites of the jamming stations. In Poznan, Poland, for instance, jamming equipment was thrown out of the windows of the upper stories of the local radio station, to be totally destroyed on the ground below.

One of the first signs of liberalization in Czechoslovakia was the cessation of jamming of the transmissions from Deutsche Welle in mid-1968, whose Czech and Slovak language services had continued to be jammed even when the VoA and BBC were freed from this disturbance. Contrarily, Soviet and East European jamming of all western stations was abruptly resumed as soon as the Soviet invasion of Czechoslovakia was announced; proof, indeed, that the jamming stations had not been dismantled, but were still maintained in readiness.

Within the past year or so, the Soviet jammers have developed new techniques involving the use of over-modulated voice signals. And many Soviet jammers are now directed against Radio Peking. Until a few years ago, it was accepted that one Communist nation would not jam or interfere with a broadcast of another Communist nation. Each Communist station supplied the others with tape recordings presenting a weekly review, in the language of the recipient country. Such programs are still heard, in much reduced form, over Radio Moscow's domestic service. Just as Radio



The programming of Radio Free Europe is varied, but well-balanced. These RFE news writers are studying wire service and off-the-air monitoring reports on political happenings. Their commentaries will supplement the excellent jazz and pop music shows.

Moscow announces in Russian as "Govorit Moskva," it is entitled, "Govorit Varshava," "Govorit Sofia," etc.

Now, however, Radio Peking is broadcasting 24 hours a day in the Russian language and has recently begun calling on the people of the Soviet Union to revolt against the "revisionist clique" in the Kremlin. The musical interval signal, from the anthem, "The East Is Red," is played and the announcer is heard with the station identification, "Govorit Pekin." At that very moment, on comes the Soviet Union jammer, usually not just one, but upwards of a dozen or so clustered around a single frequency. In a wild attempt to avoid this jamming, Radio Peking often abruptly shifts frequency. This is usually an unsatisfactory technique because the jammer signal extends many kilohertz on either side of the center frequency and even the new Peking frequency is often still under the blanket signal created by the jammer. Also, if operating inside the international broadcasting bands, any frequency change may move Radio Peking onto a channel already occupied by another powerful transmitter, or in the worst instance, even onto another jammer!

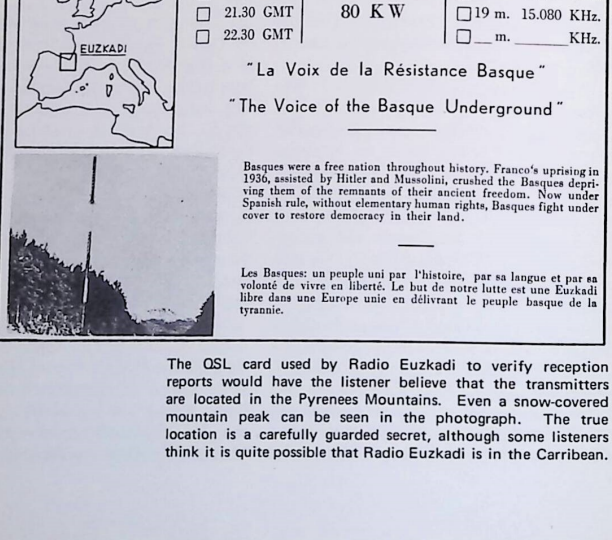
When the broadcaster jumps frequency to get away from a jammer, there is no continuity of reception for the listener and the result is, unhappily, the listener rapidly loses interest and moves to another part of the dial.

The Geography of Jamming. Because of the rotation of the earth and the skip distance effects of shortwave broadcasting, Radio Peking is in a disadvantageous position by broadcasting from east to west. This is particularly true for propagation in

the prime evening listening hours. A jamming station located farther west would continue to be audible and not be skipped out, whereas, in the days of jamming of western stations, a broadcaster located in North America, or on the far west edge of the European continent, or North Africa will continue to be heard in the Soviet Union, while the jammer will be audible only, let us say, in the middle of the Pacific Ocean. It is for this reason that the VoA established its main European relay base at Tangier in Morocco, and that Radio Free Europe broadcasts on shortwaves from transmitters in Portugal, rather from transmitting sites near the studios in Munich, West Germany.

The establishment of a pro-Communist government in Cuba could have been a disaster for anti-Communist broadcasters such as Radio Free Europe and Radio Liberty. Luckily, however, Cuban jamming has not been on an international shortwave broadcasting scale, although there is some annoying Cuban disturbance of Spanish-speaking stations broadcasting on the medium waves from Miami. There have also been instances of jamming of stations broadcasting from New Orleans and Swan Island (no longer active). Fortunately, a full-scale radio war in the Americas has not yet occurred.

Despite considerable provocation, the NATO countries have never responded in kind to the jamming of broadcasts from Communist eastern Europe. With freedom of information, press, radio, television and other media in these countries, the broadcasts on the shortwaves from eastern Europe were of minor significance. The sole exception was notably that of Italy which sent constant protest notes to the governments of the eastern European countries which went beyond the bounds of legiti-


RADIO EUZKADI — EUZKADI IRRATIA
Date:_____196__
☐ 20.30 GMT
☐ 21.30 GMT
☐ 22.30 GMT
80 KW
☐ 23 m. 13.250 KHz.
☐ 19 m. 15.080 KHz.
☐ __ m. _____ KHz.
"La Voix de la Résistance Basque"
"The Voice of the Basque Underground"
EUZKADI
Basques were a free nation throughout history. Franco's uprising in 1936, assisted by Hitler and Mussolini, crushed the Basques depriving them of the remnants of their ancient freedom. Now under Spanish rule, without elementary human rights, Basques fight under cover to restore democracy in their land.
Les Basques: un peuple uni par l'histoire, par sa langue et par sa volonté de vivre en liberté. Le but de notre lutte est une Euzkadi libre dans une Europe unie en délivrant le peuple basque de la tyrannie.

The QSL card used by Radio Euzkadi to verify reception reports would have the listener believe that the transmitters are located in the Pyrenees Mountains. Even a snow-covered mountain peak can be seen in the photograph. The true location is a carefully guarded secret, although some listeners think it is quite possible that Radio Euzkadi is in the Carribean.

mate international broadcasting by interfering in the internal affairs of western countries, especially in the program, "Oggi in Italia" (Today in Italy), by broadcasting for many years over a battery of transmitters in Rumania, Hungary and Bulgaria, though originating in Prague, Czecholovakia.

During the height of the Cyprus crisis, the BBC's relay station on Cyprus began to jam broadcasts to the Greek islanders from Radio Athens. This jamming was notably effective, as the Hellenic National Broadcasting Institute has very low power transmitters. However, as soon as word of this local initiative by the British authorities in Cyprus reached London, questions were asked on the floor of Parliament, and the jamming abruptly ceased. With this minor exception, which lasted less than two weeks, no major western country to the author's knowledge has indulged in jamming.

The Spanish government blamed Radio Prague for fomenting strikes and disturbances in the Asturias mining province. Spain has also—for well over 20 years—attempted with little success to jam a clandestine station known as Radio Espana Independiente, which calls itself "Estacion Pirinaica" ("Pyrennean Station") but far from being hidden in some cave in the Spanish mountains it is actually located in eastern Europe.

Another long-time clandestine broadcaster is Radio Euzkadi, La Voz de la Resistencia Basque. The Basques are a non-Indo-European people living on both sides of the Franco-Spanish border where it meets the Bay of Biscay. Euzkadi, the name given by the Basques to the Basque Country in which they live and which the nationalists among them would like to recreate as a national state, is actually the same word as the English "Biscay."

Radio Euzkadi broadcasts in Basque and Spanish. Although it caters to an international audience, it is aware of shortwave hobbyists; consequently it announces, appealing for reception reports, in English and French, and English reports are acceptable. No verbal attack is ever made on the French government, although one-tenth of the Basques live on French soil, and a mailing address in Paris is given. Some of the transmissions appear to be general attacks on the present Spanish government and all its policies, rather than truly nationalistic appeals for an independent Euzkadi, and although this is hotly denied by the station in its correspondence from the Paris post office box, there appear to be Communist overtones in some of the programming.

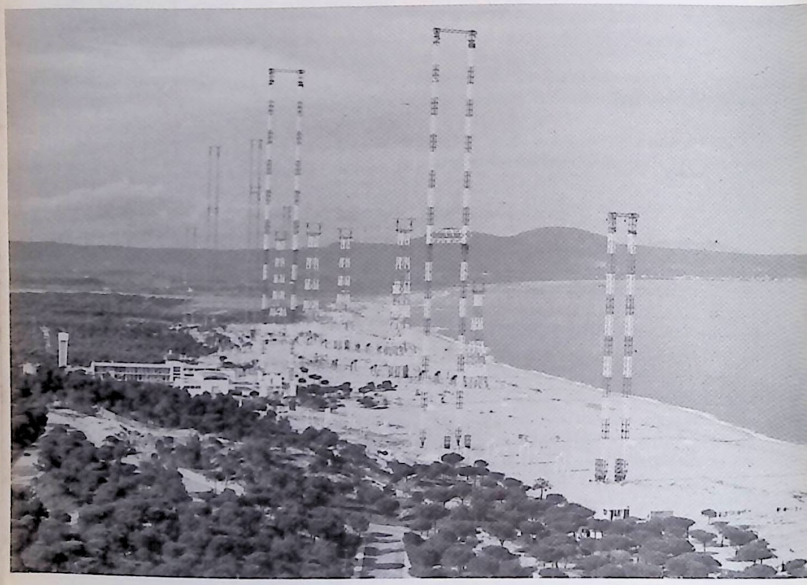
Although the exact location of many clandestine stations is unknown, an approximate location, at least a country or geographical area, can usually be determined. But Radio Euzkadi is still an unknown quantity. Although admittedly audible, despite Spanish jamming, in its target area in northern Spain, the Voice of the Basque Resistance is often reported by listeners in the Americas. The Basque Government in Exile has its seat in Argentina and Radio Euzkadi, from its Paris office, sometimes sends out maps of the Basque Country printed in Buenos Aires. But, propagationally a location in southern South America is impossible; a location in Central America is more likely, and some claims for Cuba as a location have been made. One objection to this theory, however, is that the Cuban government enjoys better relations with the present government of Spain than with any other Western European government; there are regular Havana-Madrid airline flights and growing trade links.. Would the Castro governemnt indulge in an act of subversion against the Spanish administration, and against the territorial integrity of Spain?

It can be said that Radio Euzkadi is the most mystifying of the clandestine stations presently on the air; and that the shortwave listener who is generally more interested in established stations in known locations will probably wish to add at least this one clandestine logging to his collection. For others, Radio Euzkadi may merely be the first of many, and an introduction

to the fascinating field of clandestine and quasi-clandestine radio.

The Communists Fight It Out. The current air war between the Soviet Union and the People's Republic of China is fought with equal virulence on both sides. In an endeavor to penetrate to all parts of mainland China, Radio Moscow has introduced transmissions not only in standard Chinese, but in Cantonese and in the Shanghai dialect. The standard Chinese broadcasts are on the air 24 hours a day, well over twice the air time devoted to any other Radio Moscow foreign language service. These transmissions are made over a battery of transmitters in the vicinity of the Chinese border at Vladivostok Khabarovsk, Blagoveshchensk, Irkutsk and other sites, to which the programs are carried by telephone land-lines from the Moscow studios.

Since the cultural revolution in Communist China, the Chinese authorities have frowned upon the playing of traditional Chinese music, filling the air waves with revolutionary marches and choruses. Proclaiming itself the guardian of traditional



From this magnificent transmitting site at Playa de Pals, Spain—only 75 miles northeast of Barcelona—Radio Liberty beams a very powerful signal into the Soviet Union. Many communications experts consider that the money and effort spent jamming Radio Liberty exceeds the annual budget of the Voice of America. All transmissions from Radio Liberty are jammed 24 hours a day. This site was chosen to provide excellent propagation conditions into the Soviet Union.

Broadcasts from Radio Liberty are made in numerous languages; including Azerbaijani, Georgian, Avar, etc. This announcer in her Cherkass national costume is recording a program in the Lampertheim, West Germany studios. Programs of Radio Liberty to eastern Siberia are transmitted over the facilities of the BCC, Taipei, Taiwan.

Chinese culture, Radio Moscow now broadcasts many hours of Chinese operatic and classical music selections each day.

It is doubtful, however, that many of Radio Moscow's Chinese transmissions actually reach inside continental China. The policy of the Peking government is to use wired relay networks and public address loudspeakers. In an apartment block, school or factory, there is usually only one radio receiver and that in the hands of a party cadre. Whatever program he chooses to listen to is relayed over the public address network. Obviously, that program is not likely to be Radio Moscow, the VoA, Radio Liberty, or the BBC. For a country of nearly 800,000,000 people, the official count of radio receivers is well under 9,000,000.

What Can The Listener Do? The introduction of jamming against a particular broadcasting station is a political decision. It is usually made by politicians with no idea of the technical problems involved and of the accidental or incidental consequences. The jamming decision is rarely made by a particular broadcaster, but almost inevitably at top governmental level. Therefore, correspondence with radio sta-

tions which also indulge in jamming, or in countries that are guilty of jamming, will not reach the people who initiated the jamming in the first place. Even the United Nations finds that its hands are tied.

This is why the anti-jamming campaign conducted for many years by the International Short Wave Club (England) has been marked by so little success. The club has repeatedly urged a boycott against all stations and countries guilty of jamming. In particular, it urged that no reception reports be sent to the stations of that country. It should, however, be obvious that a drop in the number of reception reports received by an East European broadcaster will not affect the policy on restricting audibility, inside that country, of foreign broadcasts beamed to that country in its own language. The history shows that if jamming is to be reduced, it is in response to a definite political detente. It is a political decision and the fact that radio broadcasting is involved is strictly incidental.

Perhaps the only thing which the average listener can do is send reception reports to stations guilty of jamming which show how they, themselves, are suffering from their own jamming. For example, the Pacific coast North American service of Radio Moscow is often broadcasting on frequencies used by Radio Liberty in Europe to beam programs to European Russia and the western part of Siberia. Although Radio Liberty is not usually audible on these frequencies in North America, the Soviet jamming is quite loud and has a deleterious effect upon Radio Moscow's reception along the western coast of North America. This state of affairs can be emphasized in reception reports to Moscow. If, on the other hand, a report boycott is instituted against Radio Moscow it is doubtful that they will ever know about it.

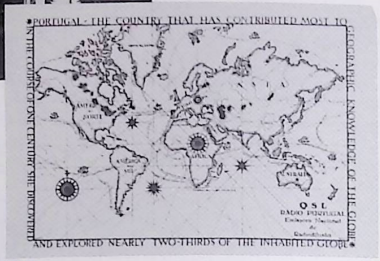
CHAPTER 7

Reception Verification and QSL's

In the early days of shortwave listening there was an aura of mystery surrounding the reception of DX stations. Little was known about radio wave propagation and the broadcasters placed great value upon accurate reception reports. To encourage reporting, various broadcasters issued attractive acknowledgements called QSL cards or "veri's." The shortwave listeners themselves began to compete for QSL cards from the rarely heard stations. The prestige of an SWL was greatly enhanced by the number of countries that he had verified.

Today, the shortwave broadcasters do not place as much emphasis on reception reports as they did 20-30 years ago. However, an overwhelming majority of broadcasters appreciate receiving a detailed reception report and will either acknowledge or "verify" that you have actually intercepted their signal. The verification is something "official" and is the prize eagerly sought by thousands of SWL's. It is a concrete souvenir from the broadcaster and outside of tape recording everything you hear, the "verie" QSL card is the best way of proving your DX'ing ability (or luck).

QSL Card Collecting. Acquiring QSL cards verifying the reception of shortwave broadcasters has become a hobby within a hobby. Although QSL's serve one particular purpose, they are themselves avail-


PORTUGAL - THE COUNTRY THAT HAS CONTRIBUTED MOST TO
GEOGRAPHIC KNOWLEDGE OF THE GLOBE
IN THE COURSE OF ONE CENTURY SHE DISCOVERED
AND EXPLORED NEARLY TWO-THIRDS OF THE INHABITED GLOBE
QSL
RADIO PORTUGAL

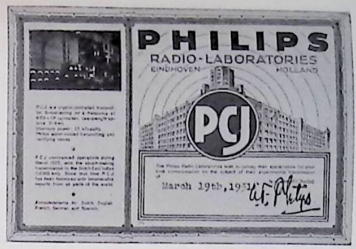
A few of the more artistic QSL cards. The illustrations are not all to the same size—the Portugal QSL card is larger than the other four. Radio Japan and Radio Australia may issue several different cards a year.

able in a wide variety of patterns. Some QSL cards are generally regarded as highly attractive and may be found gracing the walls of many shortwave listening posts. Among the broadcasters issuing QSL cards of original artistic merit or superior design are: Radio Japan, Radio Afghanistan, Radio Denmark, Radio RSA, Radio Brazzaville, Radio Portugal, Radio Australia, Radio Finland, Radio Sweden, Radio Nederland, Radio Switzerland, etc.

Some broadcasters print the information concerning your reception verification on the reverse side of an attractive colored picture postcard of their country. These postcards then become a means for the shortwave listener to combine his hobby with that of view-card collecting. Of particular note among the stations that frequently send outstanding picture postcards are: Radio Norway, Radio Budapest, Radio Prague, Radio Belgrade, Radio Iran, and Radio Amman.

Other broadcasters prefer to verify reception reports by means of form letters—not all of which are attractive—some of which also lack a specific verification message. The desire of the shortwave listener to have a detailed verification of his reception report can be the subject of a long discussion. In general, an acceptable verification should state that the reception report has been checked by the broadcaster and found to be correct. A text with only vague wording such as "thank you for your letter" is unacceptable in the eyes of the true shortwave listener and DX'er—it is simply not a reception verification.

A QSL card or form letter text such as, "Your reception report has been checked with our stations records and has been found to be accurate in every detail. It is, therefore, confirmed as correct.", is an idealized verification—provided that the letter or card also includes the date, time and frequency. However, even if these last three items are not given in their entirety, any word combination including the words "confirmed" or "verified" makes a thoroughly acceptable verification.

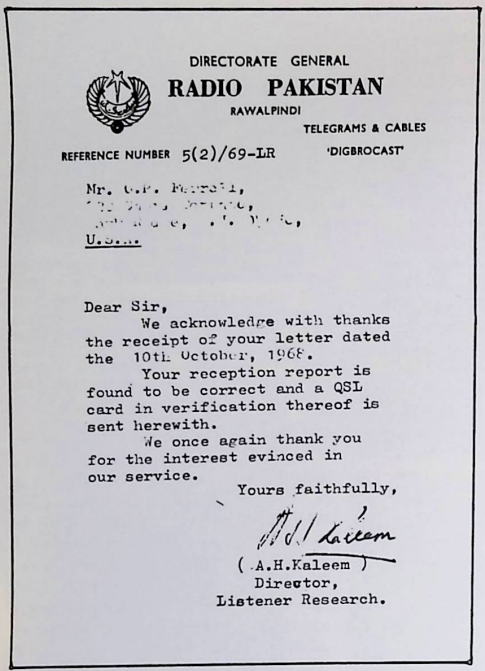


Nearly 40 years old, this QSL card from PCJ—the predecessor of Radio Nederland—is not a "true" verification. Note the wording, "The Philips Radio Laboratories wish to convey their appreciation for your kind communication on the subject of their experimental transmission." A battle concerning the exact wording for QSL cards and verifications has been going on for many years.

Disputes have arisen in recent years among DX'ers and QSL card collectors as to whether or not an equivocal phrase such as "thank you for your report on reception of our station" constitutes a verification. Most everyone now agrees that "thank you" is an acknowledgement and not a verification. But, "your report on reception of our station," appears to admit on the part of the broadcaster that the reception actually did take place and that the program was of the broadcaster in question. The final decision on the admissability of such QSL information must lie with the individual DX'er himself, or with the organizer of QSL and award competitions.

Who Signs the Verification? A typical example of a good, specific QSL verification text might be as follows:

> This will confirm your reception of Radio ABCD, on the 31 of February, 1984, between 0000—0030 GMT on 9999.9 kHz. The power output was 100kW.
>
> (Signed) ABC
> Chief Engineer



DIRECTORATE GENERAL

RADIO PAKISTAN

RAWALPINDI

TELEGRAMS & CABLES

REFERENCE NUMBER 5(2)/69-LR 'DIGBROCAST'

Mr. G.P. Peterson,
[illegible],
U.S.A.

Dear Sir,

We acknowledge with thanks the receipt of your letter dated the 10th October, 1968.

Your reception report is found to be correct and a QSL card in verification thereof is sent herewith.

We once again thank you for the interest evinced in our service.

Yours faithfully,

A.H. Kaleem

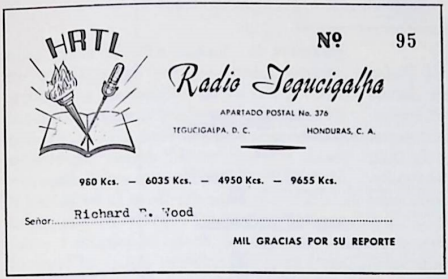
(A.H.Kaleem)
Director,
Listener Research.

This might be labelled the "confused verification" technique. The letter says that the reported reception was correct, but tells nothing about the date, time or frequency. Thus, the letter alone is not a verification. A QSL received in the same mail gives the details, but fails to say if they were correct as reported by the shortwave listener.

Of the items shown above, the signature and the power output of the transmitter could, in a pinch, be dispensed with, but there should be some definite indication that the QSL card in question did originate with the broadcaster. The QSL card should be printed with the station's distinctive design, bear its imprint, be in its own national language, or in some other way positively indicate that it originated with the broadcaster.

There is a sound reason for the shortwave listener's desire for the inclusion of all these details in his ideal QSL card. The shortwave listener should know who was involved in checking his reception report. If it is the chief engineer, for example, the frequency and other technical aspects of his report will usually be more carefully checked and verified. If a member of the programming department has issued the QSL card, the program details will nor-

mally have been checked most thoroughly. Sometimes, unfortunately, there is little or no liaison between the programming and engineering staffs at a foreign broadcaster. This is of particular concern to the DX'er when he reports to a station that is operating off its usual frequency, conducting a test, or engaged in some other exercise that may be known only to the engineer, but not to the programming staff. If the shortwave listener is sending a report on a letter-answering staff of the foreign-language section of these stations. This is particularly true at Radio Moscow and Radio Peking and eventually leads to great frustration for the listener who wishes to verify certain unorthodox broadcasting patterns in those countries, or wants to verify the domestic services, unauthorized frequency use, and other broadcasting services not particularly in the English language or in the general overseas service.


HRTL

Nº 95

Radio Tegucigalpa

APARTADO POSTAL No. 378

TEGUCIGALPA, D. C. HONDURAS, C. A.

960 Kcs. — 6035 Kcs. — 4950 Kcs. — 9655 Kcs.

Señor Richard D. Wood

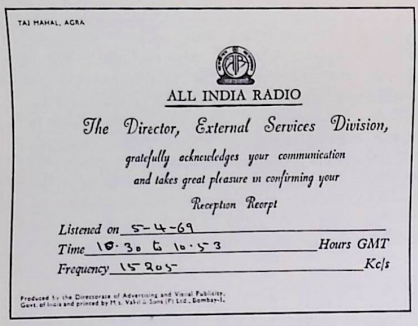
MIL GRACIAS POR SU REPORTE

While many Latin American stations are friendly toward their distant listeners, they may not always understand the technical requirements to effect a satisfactory verification. This QSL card from Radio Tegucigalpa is an excellent example of the ambiguous text, "a thousand thanks". Neither frequency, date or time are given and many DX'ers would not consider this a firm verification.

test transmission, he should mark it so very clearly. A station's secretarial staff may have precise knowledge of the station's operating hours, frequency schedules, and programming, but may fail to recognize material that was part of a test or an unusual transmission.

In certain countries, especially in the larger communist nations such as the USSR and the People's Republic of China, there appears to be no personal contact between the staff in charge of programming and the engineering staff in charge of transmitter operation, frequencies and other technical matters. The listener cannot usually get in touch with anyone other than the regular

Even if your reception report is painstakingly written in Russian or Chinese, it may well end up in the hands of the foreign relations department. At Radio Moscow, when favorable political policies reign, the North American service is perfectly willing to verify reports of Radio Magadan, Leningrad, Novosibirsk, and other regional stations. Nevertheless, it is obvious that the North American service programming department does not, presumably, have access to the station logs for the regional broadcasters. Nonetheless, many regional Soviet broadcasters, including those with purely domestic programming, will occasionally verify reception



TAJ MAHAL, AGRA

ALL INDIA RADIO

The Director, External Services Division,

gratefully acknowledges your communication and takes great pleasure in confirming your Reception Report

Listened on 5-4-69

Time 10·30 to 10·53 *Hours GMT*

Frequency 15205 *Kc/s*

Produced by the Directorate of Advertising and Visual Publicity, Govt. of India and printed by M/s. Vakil & Sons (P) Ltd., Bombay-1.

Something a little different in a QSL is issued by All India Radio. Here is a confirmation of the date, time and frequency, but no indication of the transmitter site. Not all AIR equipment is in New Delhi. Fortunately, this transmission did originate in New Delhi, but many DX'ers attempt to have the station insert the exact transmitting site.

reports from foreign listeners.

Verifications currently issued by Radio Peking are lacking in any specific details and yet, at times, Radio Peking will actually include the name of one of the regional People's Broadcasting Stations on its QSL card or mention it in a report. Obviously, such regional Chinese verifications are now highly prized.

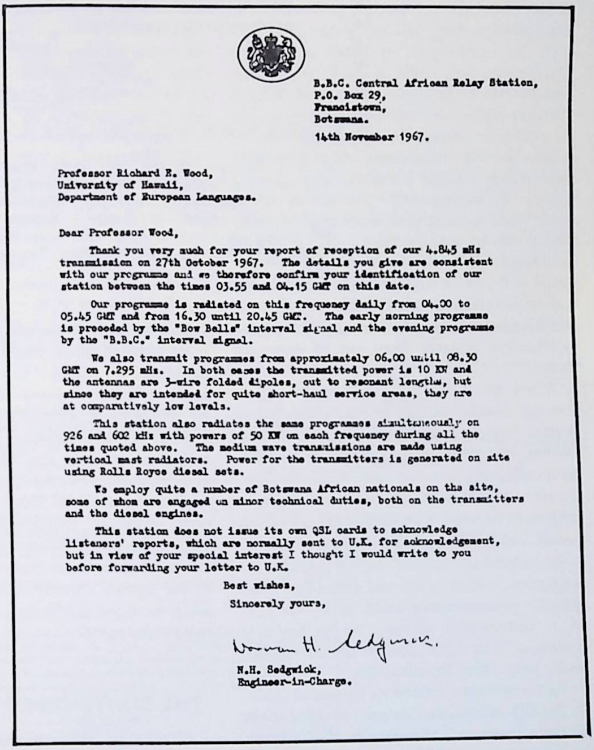
On the other hand, in many non-communist countries, regional stations tend to be friendlier and more cooperative than those stations located in the capital city. In India, for instance, the Hyderabad regional station of All India Radio has for years enjoyed a reputation as being friendly and responsive to all reception reports, while at Delhi the mail is either bogged down in bureaucratic red tape, delayed hopelessly or simply consigned to a waste basket.

Other countries with regional broadcasting stations have a strict policy of sending the reports received on regional signals along to the capital city, while others, such as Pakistan, vacillate and have no consistent policy. If the regional or local station does verify itself, such verifications are always much more highly prized than the equivalent confirmation obtained from the capital city. This is especially true in the case in Indonesia, where many of the Radio Republik Indonesia regional stations are now verifying, direct from their own city or island, but where the friendly QSL department at Djarkata will also verify most correct regional reports. Some DX'ers submit reports on all Indonesians to Djakarta not realizing the added variety and interest that could accrue to their QSL card collections if they would report directly to Medan, Surakarta, Sorong and Balikpapan.

There is generally little to be gained in sending reception reports to the transmitter sites of those broadcasters which apparently have a strict policy of forwarding such reports to studios in the capital city. Nevertheless, the enterprising DX'er may try to coax an on-the-spot answer out of one of the engineers or technicians at a relay station site. Such QSL cards or verifications are a gem in any collection. This applies to the one direct from the BBC's Central African relay station, located in Francistown, Botswana, and now defunct. This direct verification was received from the engineer in charge of the transmitter. Badly situated, the relay was unsuccessful. It was designed to broadcast the BBC World and African Service programs to Rhodesia, but was rendered totally inaudible in its target area by jamming from the Rhodesian government transmitters.

What is So Rare as a QSL? The criterion for rarity in QSL verifications is complex. Among really rare QSL's can be counted those of stations with limited lifetimes and those issued in express contradiction to the known station policy. In a sense, the

listener dealing with massive bureaucratic radio broadcasting stations that evidence an impersonal attitude and inflexible policy is a David setting out to hoodwink Goliath. What he wants is to show beyond any shadow of a doubt that his reception report has been seen, checked and verified. Where the policy of the broadcaster is to issue no QSL's, the DX'er holding a QSL—any type of QSL—from that station counts himself lucky indeed. Where the station's policy is to issue vague, depersonalized QSL's from its headquarters for a large chain of relay transmitters, our David must



B.B.C. Central African Relay Station,
P.O. Box 29,
Francistown,
Botswana.

14th November 1967.

Professor Richard E. Wood,
University of Hawaii,
Department of European Languages.

Dear Professor Wood,

Thank you very much for your report of reception of our 4.845 mHz transmission on 27th October 1967. The details you give are consistent with our programme and so therefore confirm your identification of our station between the times 03.55 and 04.15 GMT on this date.

Our programme is radiated on this frequency daily from 04.00 to 05.45 GMT and from 16.30 until 20.45 GMT. The early morning programme is preceded by the "Bow Bells" interval signal and the evening programme by the "B.B.C." interval signal.

We also transmit programmes from approximately 06.00 until 08.30 GMT on 7.295 mHz. In both cases the transmitted power is 10 KW and the antennas are 3-wire folded dipoles, cut to resonant lengths, but since they are intended for quite short-haul service areas, they are at comparatively low levels.

This station also radiates the same programmes simultaneously on 926 and 602 kHz with powers of 50 KW on each frequency during all the times quoted above. The medium wave transmissions are made using vertical mast radiators. Power for the transmitters is generated on site using Rolls Royce diesel sets.

We employ quite a number of Botswana African nationals on the site, some of whom are engaged on minor technical duties, both on the transmitters and the diesel engines.

This station does not issue its own QSL cards to acknowledge listeners' reports, which are normally sent to U.K. for acknowledgement, but in view of your special interest I thought I would write to you before forwarding your letter to U.K.

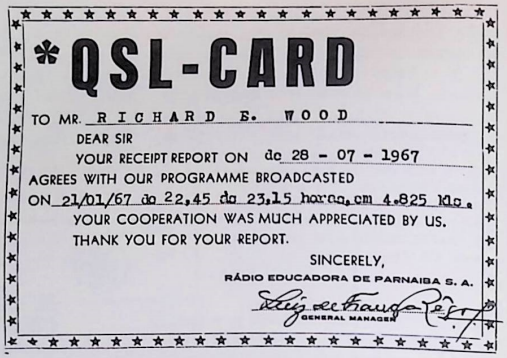
Best wishes,

Sincerely yours,

Norman H. Sedgwick.

N.H. Sedgwick,
Engineer-in-Charge.

Established by the British government in order to send a strong signal into Rhodesia during the days following that country's declaration of independence, the BBC African Relay was closed down in one year. This type of confirmation is unique and very rare.



*QSL-CARD

TO MR. RICHARD E. WOOD

DEAR SIR

YOUR RECEIPT REPORT ON do 28 - 07 - 1967

AGREES WITH OUR PROGRAMME BROADCASTED

ON 21/01/67 do 22,45 do 23,15 hora. em 4.825 Kc.

YOUR COOPERATION WAS MUCH APPRECIATED BY US.

THANK YOU FOR YOUR REPORT.

SINCERELY,

RÁDIO EDUCADORA DE PARNAIBA S. A.

GENERAL MANAGER

It is a constant surprise that some small stations, beaming only to local audiences, in Latin America show such interest in DX listeners. They have attractive QSL cards with detailed text printed in English. Sometimes the English is not perfect—as on this card from tiny Radio Educadora de Parnaiba, in Brazil's poverty-stricken "Nordeste".

not be content, but find a way to secure a verification directly from one of the relay sites.

When the QSL card is received and it gives no details, the DX'er may politely but firmly send it back requesting all details. Obviously, this is hazardous since QSL card collecting is not a case of all take and no give and the best way to obtain a specific QSL is to send a reception report which stands out well above the average, is genuinely helpful to the station and provides information which is of real value to its engineers. programming staff, or in the case of a commercial station, to its business manager. The DX'er can, in the latter case, really help some broadcasters.

In some Latin American countries (such as Brazil) reception reports received from distant parts of the world that clearly quote commercials being heard are of great value to broadcasters seeking new advertisers. These reception reports prove conclusively the marketing ability of the broadcaster. In Brazil, this has been established in a most conclusive way since some broadcasters have approached the embassies of various foreign countries to have reception reports officially certified by the embassy staff as having indeed originated in these distant countries! The reception reports are then photocopied and included with the rate cards and other advertising material from the station. In such instances, the listener may actually help the station financially. Sometimes, sad to say, these stations have been known to use reports commercially without bothering to write the listener and confirm his reception report.

THE CONTENTS OF A REPORT

Thanks to the experienced shortwave listener, the reporting of foreign shortwave stations has been developed into a fine art. Nevertheless, reporting is something in which experience counts and where the listener must be willing to learn and, when-

ever necessary, alter or change his ideas.

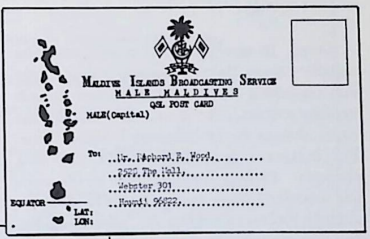
There are certain essentials which must be included in all reception reports. The form in which they are stated can be varied according to the recipient. This obviously would not apply if you use a "standardized" reporting form such as that sold by Gilfer Associates Inc. or distributed by various broadcasters and shortwave listening clubs.

If the report is destined to fall into the hands of a qualified engineer, certain technical standards in the reporting must be adhered to and a technical language used. On the other hand, if the report is to go to a small station, or a station where the engineer is not likely to see the report, a technical vocabulary can cause difficulty. The identical technical facts should be included, but must be phrased in laymen's language.

Station Address. All international broadcasters announce their addresses at frequent intervals. It is usually a simple address—such as "Radio Sofia, Sofia, Bulgaria"—which suffices to reach the station. Detailed addresses are usually necessary in reaching the radio stations in most Latin American countries and in certain other areas where there is more than one station in a single city. If in doubt, consult the most recent edition of the WORLD RADIO-TV HANDBOOK, or the SWL ADDRESS BOOK.

Name of An Addressee. The usual practice in sending a reception report is not to address it to a specific person unless the report has been so requested, or it is specifically known that the person addressed is actually working at the station and is responsible for reception reports. On occasion reception reports may be sent addressed to the attention of the individual known to be currently signing verification QSL's or letters. This person is usually referred to in the hobby press as the "Verie Signer" (V/S). Addressing a report in this fashion is most important at the highly individualistic stations such as those in Latin America. It is of least importance at the larger stations in Europe, Asia, and elsewhere.

To have value as a verification, a QSL card should be based upon actual checking of the report against the station's records. This card issued by the station in the Maldive Islands (in the Indian Ocean) is admirably worded. Any North American listener would be proud to receive this card, as it is a specific confirmation from a station located at the antipodes of the United States.



Dear Mr. Mrs. Miss. .....

We gratefully acknowledge receipt of your QSL containing reception report of our broadcast on ..7170.....Kcs, dated 16th..Oct.1960. and confirm that the material contained therein is substantially accurate/~~inaccurate. The inaccuracies are based on; timings/programme material/frequencies/identification.~~ We give below a schedule of our broadcasts.

Frequency in Kcs.	Times in G.M.T.	Power output.
.7150...9150.....	.0100..1100.....	..2.7kw..2.7kw
.9150...7150.....	.0900..1300.....	..2.7kw..15kw
.1507...7140.....	.0500..1515.....	..7.5kw..30kw
.9530.....	.0700.....	..15kw.....
.7150.....	.0800.....	..2.7kw.....

Thank you and good listening,

REMARKS: .....
.....
.....

For Director, M.I.B.S.

It is important—when showing the name of an addressee—to obtain a recent listing of such verie signers. It is particularly frustrating to send a personally addressed letter to some rare DX station and have it returned many months later marked "not at station." Obviously, the report has actually reached the radio station, but remained unopened, as the addressee was no longer employed by that broadcaster.

Brief Introduction. If the reception report is in the form of a letter, the reporter usually begins with some polite and agreeable words of introduction and greetings. He may wish to mention some details about his location especially if the broadcaster is unlikely to have heard of his particular city. He may also want to mention the distance involved between his location and the transmitter and especially whether or not it was the first time that he has heard this broadcaster. If the reporter listens regularly to the band in question, he should say so. Then, he should introduce the report, saying, "Here now are the full details of today's reception," or similar words.

Date. In any reception report, the date usually comes first. Remember that if you are reporting to an international broadcasting station, the date, not merely the time, should be in Greenwich Mean Time. For instance, at midnight GMT, the date changes. Hence, for a listener in the eastern standard time zone, the GMT day has already ended at 7:00 p.m., his local time. For the listener in Los Angeles, the GMT day ended at 4:00 p.m.

The broadcaster is obviously aware of this time differential and has adjusted his operating schedule accordingly. Nevertheless, a radio program received late Saturday afternoon or Saturday evening from a European broadcaster was obviously radiated in the early Sunday morning, GMT. Your reception should be reported in GMT time and date.

On the other hand, broadcasters beaming programs to purely local or domestic audiences cannot be expected to always know the conversion to GMT. When reporting to these stations, listen for time checks and quote the time in the format in which you hear it. This applies especially to Latin America. Some broadcasters, particularly in the northern part of Latin America, use a 12-hour clock; others, in the south, use a 24-hour clock. Numerous stations also have periods wherein the programming time has been readjusted to daylight saving time and these national peculiarities should be observed in your reporting.

Time. All major international broadcasting stations recommend the use of Greenwich Mean Time. In making the conversion to GMT, remember to make allowances for the use of daylight saving time at certain times of the year in your area. Even though Great Britain, where GMT originated, is no longer on its international time standard for domestic purposes, the BBC, in common with the great majority of world broadcasters, continues to use GMT in all its international (though not domestic) broadcasting. On occasion GMT is also referred to as Universal Time (UT).

For accuracy, the listener should make frequent checks between his watch or clock and the international time signal station broadcasters such as WWV, WWVH and CHU.

Practically all stations in Africa and Europe will understand your use of GMT. In Asia, all of the larger broadcasters will understand it, but in the case of the smaller stations in Thailand, the Philippines and certain other countries, the listener should give his report both in the local time of the broadcaster and GMT. Most stations in the Pacific area are acquainted with GMT, but owing to the presence of the International Dateline, the date and local time calculations there are at times complicated. If in doubt and if confused, always use GMT.

It is in Latin America where GMT is least understood, and as mentioned before,

VIỆT-NAM CỘNG-HÒA
CỤC VÔ TUYẾN TRUYỀN THANH
Số 132 /VTVN/PTD.2

RADIODIFFUSION NATIONALE
Station de Dalat
-:-:-:-
7, avenue Yersin
DALAT

Dalat, ngày 17 avril 1968

Q.S.L.

de la Station de Radiodiffusion
de D A L A T

Mr. Le Professeur Richard E. WOOD
Département des Langues Européennes
Université d'Hawaii
Honolulu - Hawaii 96822

Nous confirmons votre réception de notre station de radiodiffusion de Dalat, en date du 5 mars 1968 - de 17 h 40 à 18 heures (heures locales : G.M.T. + 8) sur la bande des 49 mètres - Fréquence 6116 kc/s.

Nous vous remercions sincèrement pour votre rapport d'écoute d'une parfaite technique.

Le Directeur de Radio Dalat,

ĐÀI PHÁT-THANH DALAT

HOÀNG ANH-TUẤN

When the DX'er does not know the language used by a station in its broadcasts, but suspects that an English language report will not be understood, it often pays to write your report in the language of the former colonial power. In the case of Vietnam, this meant reporting in French, and the success of the technique is shown above in this letter from the V.T.V.N. station located in Dalat.

local time is preferable. Certain Latin American countries, principally Mexico and Brazil, have more than one time zone. Check the borders of these zones and if still in doubt as to the zone location of a certain transmitter, use the time standard of the national capital, but specify this fact very prominently. In reporting, list the total time covered in your report since many stations will insist that you record at least 15 minutes of their programming. List individual precise times for each program detail reported.

Frequency. International broadcasting stations may be reported in either kHz (kilohertz) or MHz (megahertz). To domestic broadcasting stations, many of which have not changed over to the modern nomenclature, it may still be preferable to report in kilocycles (kilocycles per second) or megacycles (megacycles per second). The frequency of the station being reported should be given in your report with as great an accuracy as can be achieved. Thanks to crystal calibrators, frequency meters and other equipment, some listeners can supply very accurate frequency checks. On the other hand, some listeners whose receivers do not have precise calibration will find it necessary to rely on announcements made by the station itself, or gained from information in published material. The latter practice has distinct disadvantages as the station may not be operating on the frequency mentioned in the material and on occasion the station may not even be operating on the frequency which it announces! The problems of lack of communications between the broadcasting engineer and the broadcasting station announcer have already been discussed, but at other times the station may actually wish to conceal its operation on an unauthorized frequency.

In general, except in the most obvious cases, the listener should state whether the frequency is announced (and hence not checked by the reporter) or actually determined from an off-the-air frequency check. The main problem in quoting frequencies arises where a station is found to be operating off frequency—intentionally or inadvertently—on an unauthorized, unannounced frequency. Where the station has a capable engineering staff and the listener's report is likely to reach the technical department, such discrepancy should certainly be mentioned. However, in the case of the smaller Latin American broadcasters, it certainly does not pay to mention this fact and sometimes it is actually undiplomatic to mention such operational irregularities. Experience generally shows that, in such cases, the nominal frequency should be listed first, and then, in parentheses, the actual calibrated frequency explaining, as appropriate, the equipment with which such a discrepant frequency has been measured. It is one of the great challenges of shortwave listening to try to obtain specific verification of reception of a broadcaster on an unauthorized frequency or a harmonic.

Wavelength. It is usually unnecessary to mention the "exact" wavelength of the broadcaster. In fact, this old terminology is now mainly found in certain parts of Europe and Asia and among regional stations in the Soviet Union and Indonesia. Otherwise, the meter band can be quoted in conventional terms, e. g. "25 meters," after the specific frequency, e. g. 11705 kHz, has been given.

Receiver In Use. Always detail in your report the manufacturer, model number and number of tubes or transistors in the receiver used to hear the station. It is also worthwhile to give the year of manufacture. In writing to foreign broadcasters do not assume that the station's staff knows all radio receivers well enough to identify them merely by the model number. For instance, do not simply write "HQ-180", but show specific information such as "Hammarlund HQ-180 communications receiver, USA made, year 1968, 18 tubes." Should you feel other details are

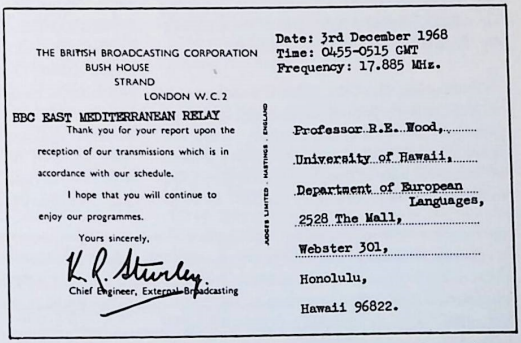
necessary, do not hesitate to give them. For some broadcasters, the breakdown into three categories of receivers is sufficient: communications receivers, domestic receivers, and transistorized portable receivers.

Other Equipment. Mention in your report any other equipment actually used in receiving the station during the period and on the frequency reported. Do not list the entire contents of your listening post. However, if a special Q-multiplier or a special r. f. preamplifier were in use, it should be mentioned. To the technically minded station, comparative results with or without these aids could be of use.

Antenna. Some broadcasters simply prefer that you break down your receiving antenna type into two major categories: indoor or outdoor. Again, the commercial manufacturer is of less importance than a description of the antenna's salient characteristics, including type, length, height and orientation. For most purposes, "external dipole" is a sufficient description. As most of your report to the DX station will be taken up by program details, do not spend too much space on descriptions of your receiving equipment unless such details are relevant and essential to the broadcaster.

Program Details. These should be the major element in your report and must be specific. They should consist wholly or largely of actual quotes. For instance, "News in English" is not a program detail. But the statement, "BBC World Service, the news read by Roger Collinge" is detailed program information. "Station identification" is not a program detail. However, "You are listening to the BBC coming to you by way of the Atlantic relay station" is program detail. "Interval signal" is not program detail. But, "Bow Bells, played continuously for a duration of 25 seconds" is program detail.

Quote only program material that is apparently originating at the broadcaster. For instance, if a station is broadcasting a religious transcription, do not quote long extracts from the transcription itself, but only announcements that surround it,



THE BRITISH BROADCASTING CORPORATION
BUSH HOUSE
STRAND
LONDON W.C.2

BBC EAST MEDITERRANEAN RELAY

Thank you for your report upon the reception of our transmissions which is in accordance with our schedule.

I hope that you will continue to enjoy our programmes.

Yours sincerely,

K. R. Sturley.

Chief Engineer, External Broadcasting

JAGGS LIMITED · HASTINGS · ENGLAND

Date: 3rd December 1968
Time: 0455-0515 GMT
Frequency: 17.885 Mhz.

Professor R.E. Wood,
University of Hawaii,
Department of European Languages,
2528 The Mall,
Webster 301,
Honolulu,
Hawaii 96822.

The British Broadcasting Corporation prefers to send an acknowledgement QSL card - - rather than a true verification. The usual text is vague and the date, time and frequency are invariably omitted. However on rare occasions the BBC will verify a reception report they have found of value. This specific verification was the result of a carefully detailed report to the BBC East Mediterranean Relay.

which might be "Hear Billy Graham's Hour of Decision every Sunday at 2200 over ELWA, Radio Village, Monrovia, Liberia."

With all the words and music pouring out over the world's transmitters which items should be quoted in a reception report? Quote those items which are most original and typical of the broadcasting station, and those which stand out as authentic and unmistakably related to the broadcaster. To commercial broadcasting stations operating on the shortwave bands, send reports quoting as many commercials as possible. In certain countries, especially in Latin America, the commercials are the only significant details which are entered into the broadcasting station log book. Musical selections are very seldom entered in the log book in any country and are therefore not to be recommended over other possible program details. On the other hand, if a specific record title is given and the report is sent speedily and air mailed to the station, reaching the announcer or disc jockey in charge of the program heard, he may remember playing the record in question and this may assist you in gaining another QSL verification. The main thing to remember in deciding on what to report is to make your reporting details specific and distinctive.

Reception Quality. This is another part of the report where you must be most specific. If there is interference, state the precise frequency of the interfering station or stations and attempt to identify these stations by call letters or name. If such identification is not possible, say so. If there is a heterodyne hum or whistle, or the "beating" effect of two stations operating near or on the same frequency, say so. To smaller broadcasters who do not understand codes and technical wording, always describe your reception in layman's vocabulary.

To all international broadcasters who can be expected to have qualified engineers and technical staff to scan reception reports, it is preferable to use the SINPO or SINFO code. There are five variables in this code and each of these has five possible ratings. Typical ratings are groups of five figures such as 54544, 23232, or 12311. A maximum rating would be 55555 and a minimum 11111. However, such extreme ratings should be rare and the 55555 rating would only apply to a local broadcaster within a few miles of the listener. In the case of exceedingly poor reception, a certain variable, such as "1" for interference, would make it impossible to determine the exact rating of some of the other variables, such as fading. In these instances, a question mark should be placed in the indeterminable variable's slot, producing an overall rating of, say, 111?1.

The SINPO code interpretation is shown in the adjacent table. A more recent adaptation (SINFO code) is discussed where the fourth variable identified as "Fading." In the original SINPO code, the fourth variable indicated more general forms of "propagation disturbance" and was understood to include flutter and other propagation irregularities. The SINFO code will

Signal strength		Interference (Other Stations)		atmosph. Noise (Static)		Propagat. disturb. (Fading)		Overall merit	
5	excellent	5	none	5	none	5	none	5	excellent
4	good	4	slight	4	slight	4	slight	4	good
3	fair	3	moderate	3	moderate	3	moderate	3	fair
2	poor	2	severe	2	severe	2	severe	2	poor
1	barely audible	1	extreme	1	extreme	1	extreme	1	unusuable

SINPO code interpretation shown above differs from suggested SINFO code in column 4 originally identified as "Propagation Disturbance". Suggested SINFO would read; Nil, Slow, Moderate, Fast, or Very Fast as determined by the frequency of the fading rate.

gain stature and popularity because the interpretation of fading is simpler for the average listener to handle and may even be measured by the listener who counts the number of fades per minute with the aid of the second hand of a watch or clock.

Return Postage. While the major international broadcasters, especially those speaking for their governments, do not require, or even accept, return postage, it is often necessary to help smaller, poorer stations by paying the postage on their reply.

Non-commercial, educational and missionary stations, as well as small commercial stations, especially those in Latin America, often require, or are at least very happy to receive, postage to pay for their QSL reply to the listener. In many cases this may make the difference between receiving that much-sought verification and not receiving one.

International Reply Coupons are the standard method of paying for return postage. They are issued by the Universal Postal Union, and may be purchased at any of the larger post offices. In theory, they are acceptable in all Postal Union member countries; but in practice, it is impossible to exchange them for postage stamps in some countries, especially several Latin American countries (Peru, for one).

One IRC (as they are conventionally abbreviated) can be exchanged for a stamp at the surface mail rate to a foreign country. Hence, for airmail postage, it is generally necessary to enclose three IRC's for a letter, although two may suffice to pay postage on a QSL card alone. Sending three IRC's with a report may become expensive, and there are other methods of sending return postage.

Residents of British Commonwealth countries, including Canada, may purchase Commonwealth Reply Coupons, which are cheaper, and pay return postage from any Commonwealth country to another. One coupon is redeemable at the standard surface-mail postage rate.

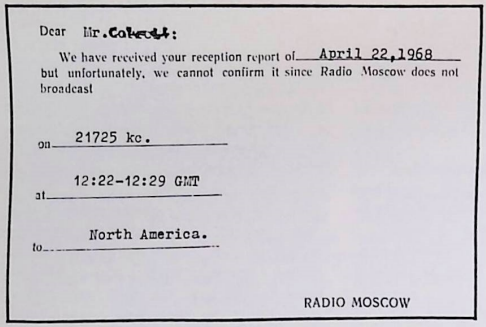
Rather than sending three IRC's, it is often cheaper to enclose mint stamps of the country in which the station is located. This is also more convenient and is the only way to pay return postage for stations in countries in which IRC's are not accepted, or where the lack of post offices, or their inaccessibility, makes them hard to exchange. For instance, there is only one post office in Tegucigalpa, capital of Honduras, and the situation in Santo Domingo is just as bad. Mint stamps may be obtained from your local stamp dealer. Explain to him that you want only current, valid issues; he may have some slightly damaged mint issues which would be of no use to collectors, but which are perfectly suitable for postal purposes, and you may be able to obtain these at a reduced price. There are also stamp services which provide specially packeted issues of all countries, in appropriate amounts for airmail postage to North America, for SWL's.

Especially if your address is complicated, or if you are writing to a station which is known to have a poor verification record, it often pays to send a complete self-addressed, stamped envelope inside your own envelope and attached to your report. This is the ultimate in making it easy for the station to reply.

THE QSL CARD COLLECTOR

Once the listener has accumulated a certain number of QSL verifications he must decide how to display these for the benefit of visitors and friends, both DX'ers and non-listeners. There are two basic forms and shapes of verifications to be displayed: cards and letters. In the case of QSL cards, a greater variety of mountings is possible. The principal problem is that very frequently both sides of the card must usually be visible as the front often displays an attractive design while the reverse side carries the verification text.

A strip of transparent plastic pockets is a means usually adopted by many card collectors to permit mounting their QSL's



Dear Mr. Colvett:

We have received your reception report of April 22,1968 but unfortunately, we cannot confirm it since Radio Moscow does not broadcast

on 21725 kc.

at 12:22-12:29 GMT

to North America.

RADIO MOSCOW

Another quaint "no verification" is this peculiar message from Radio Moscow. The listener was well aware that the broadcast was beamed to South East Asia and not to North America. After investigation it was determined that the station heard was "Radio Peace and Progress" - - which if you believe things like this is not operated by Radio Moscow.

so they are visible on both sides. This method has the added advantage of not requiring the use of glue mounts which might possibly damage the card. Pinning, or gluing, the QSL cards to your listening post wall is not recommended as they may be damaged and will also be subject to color fading caused by sunlight and dust.

Another popular method, equally applicable to cards and letters, is the album. No QSL albums as such are sold, but foreign first-day covers and photographic albums are generally suitable for the purpose. Albums with transparent leaves or pockets may be used for cards or letters where both sides bear important text material. Photostatic copies of one side of a letter or QSL card might also be used and displayed alongside the original of the other side of the card.

Such albums are attractive features in any listener's room and, being portable, they may be taken to meetings of local clubs or the national shortwave listeners' conventions. The looseleaf album is always preferred so that more pages may be added as required. Eventually, the more experienced DX'er will find it necessary to expand into several albums and he may divide his collection by band or by continent or possibly by date of reception, keeping the album in chronological order.

The Follow-Up. In certain instances a reception report may not elicit a reply from the broadcaster. There are several possible courses of action in such an event. If the station is regularly audible and if the frequency, time or other circumstances of the original reception report were of no special significance, it is simply best to make another reception report and to send it along making no reference to the earlier report.

However, the absence of a reply from the broadcaster does not necessarily indicate an unwillingness to answer or acknowledge your report. In the first place, your report may not have been delivered. Double-check the address, and try registering your next report. In Latin America, in particular, the postal service tends to be unreliable. Registration is expensive, and still does not guarantee delivery in the recipient country. A very real possibility in the case of foreign language stations is that

DEPARTEMEN PENERANGAN
URUSAN RADIO DAN TELEVISI
R. R. I. - ~~TELEVISI~~
STUDIO: S O R O N G

ALAMAT DJALAN ... TILP.:

No. 189/S/67.- SORONG, 5 Desember 1967.-
HAL laporan penerimaan siaran/pemantjar
LAMPIRAN

Tuan Professor RICHARD E.WOOD
Department of European Languages
University of Hawaii
HONOLULU, Hawaii
96822 USA.-

Tuan jang terhormat,

Saja sangat senang, bahwa Tuan sedang beladjar bahasa Indonesia. Karena itu surat ini saja tulis dalam bahasa saja.

Laporan Tuan tertanggal 12 September 1967 mengenai penerimaan siaran RRI Sorong, adalah tepat sekali.Kami beroperasi dengan frekwensi 4872 Kc/S pada setiap malam dari djam: 08.00 sampai djam 14.00 G.M.T.

Pemantjar kami jang dapat Tuan dengar itu, mempunjai kekuatan 10 kilowatt, dan laporan2 jang telah kami terima dari luar negeri sungguh banjak sekali. Misalnja dari berbagai kota di U.S.A., Djepang,Australia,Malaysia dan Europa, jang semuanja sangat menggirangkan hati kami.

Sungguh, Tuan telah berbaik hati dengan memberikan laporan dan bahkan mengadjak kami berkundjung ke Hawaii jang indah.

Saja harap, Tuan djuga suatu ketika akan mengundjungi negeri kami jang tjantik.

Terimalah salam persahabatan jang hangat dari kami seluruh Staf R.R.I. Sorong.-

Wassalam,
(Padjar M. Prawira).-

INSPEKTORAT RADIO R.I. R. R. I. SORONG DEPARTEMEN PENERANGAN

A language often heard on shortwave radio, and of particular interest because of the large number of small regional stations using it, is Indonesian. Some shortwave listening clubs have distributed reporting forms in Indonesian. Very good results have been obtained. This letter is from Radio Republik Indonesia, Sorong, West Irian.

your English language report was not understood. If your report was written in English and did not elicit a reply, attempt to write your next report in the country's own language.

Even if the report is received by the broadcaster, it may only be that this particular station receives very few foreign reports or yours may be the very first foreign report and they may not understand the favor that you are seeking. It may have happened, for instance, that your report has been acknowledged over the air (without sending you advance notice of such a spoken answer), or might even have been publicized in the local press. It is, therefore, imperative to be explicit in your reporting and to politely, but clearly, ask for "a letter or card from you, confirming the correctness of my report." Words like "a reply," "an answer," "a confirmation" are not clear.

Certain broadcasters are rarely heard. You may have heard this particular station only once and quite briefly. So you are unable to make another report and in such a case you should have kept a carbon copy, Xerox copy, or photostatic copy of your original report. Or, at the very least, all of the essential details should still be in your reception log. From these, make up another report, or send your copy of the original, with a polite note along to the broadcaster:

> "Three months ago I air mailed to you a report on my reception of your station, requesting the favor of your reply, verifying its correctness. I have not heard from you, and wonder whether my report or your reply to my report may have been lost. I am taking this opportunity of sending you another report (a copy of my original), in the hope that you will find it possible to send me the verification which I will deeply appreciate."

One question which arises whenever follow-ups are discussed is the time which the listener should allow to elapse before he writes his initial reception report off and sends another report. There is no fixed period of time. For a broadcaster in an area where mail delivery is reliable, two or three months should be reasonable. For Latin America, four or five months is the minimum. Time lags of two years, without a follow-up being sent, are fairly frequent from Brazil, in particular! This is probably due to a combination of postal errors and lack of personnel, or time to verify and check such reports at the station.

If in doubt, wait! It is confusing and disheartening for a station to receive an overly hasty follow-up letter when it has already sent its QSL verification.

Pennants. Adorning the walls of the listening dens of many SWL's are brightly colored triangles and squares of silk and plastic. They are the souvenir pennants which are sent listeners by numerous stations in many countries, but above all in Latin America.

The leading pennant-producing country is Colombia, closely followed by Brazil. The countries of Central America, including Mexico, do not generally send out pennants with the regularity of Colombia, Brazil, Chile, Argentina or other South American nations. But every independent country of Latin America has at least one station which sends, or has sent, an attractive souvenir flag to its overseas listeners. Pennants vary in design from the simple paper triangle of Trans-World Radio, Bonaire, or the miniature pennant of Radio Rural, Rio de Janeiro, Brazil, to the huge, fringed and tasseled banners sent by some remarkably small stations in Brazil. As a matter of fact, a rough rule of thumb is that the smaller the station, the larger the pennant. Some of the tiny stations operating in the 120-meter band, which are very challenging catches for the DX listener, have larger and more attractive pennants than those which operate transmitters in the international bands, on 19, say, or 25 meters.

A few DX'ers have started a hobby within a hobby by collecting pennants. These brightly colored triangles of cloth or plastic are sent to listeners that have submitted accurate reception reports. Not every report reaps a pennant return, but scores of broadcasters - - particularly in Latin America - - send these souvenirs.

The pennant craze began in Latin America (and also in Spain). Back in the 1920's and early 30's, when North American stations offered EKKO stamps as souvenirs on their verifications, the Spanish- and Portuguese-speaking stations began sending souvenir flags. Pennants are still rarely used by North American stations, but some non-Latin stations, mainly in Eastern Europe, have responded to appeals from listeners and joined the pennant bandwagon.

It pays to establish good relations with Latin American stations. Send a thank-you note or postcard, and who knows, a nice pennant, just the ideal filler for that blank spot on the wall above those receivers, may arrive. A few stations in Venezuela, Peru and some other countries even issue a different pennant every year. So, a second or third report to one station, a year or two later, may bring a totally different design for your collection. Of course, one good turn deserves another, and you are more likely to receive a pennant if you send a postcard of your city, some used commemorative stamps, or even a pennant from your city or state.

Acknowledging a Verification. It should be the duty of every shortwave listener to send a postcard of thanks as a courtesy to those rare small broadcasting stations that have verified. This makes for good station-listener relations. It helps all the other hobbyists who may report that station at a later date. A simple picture postcard, acknowledging receipt of the station's reply verification and thanking the station, is all that is required. The postcard should be something that the listener finds of interest in his own locality. And, if the listener is short of funds, the postcard may be sent by surface-sea mail.

Verification, Not Acknowledgement. One of the most frustrating things which can happen to a shortwave listener is to send a carefully detailed reception report,

requesting a specific confirmation and to receive a card or letter, full of effusive thanks, but making no reference to any receptions which may or may not have taken place.

When this happens, it is probably due to one of two causes. The broadcaster may not know what is wanted by the listener, or may not understand that the information the broadcaster is providing does not match the requirements the listener has seen fulfilled elsewhere. Alternatively, the broadcaster may have adopted a policy of acknowledging all reception reports as opposed to going to the time and trouble of verifying them individually. The former case is easier to deal with than the latter.

When the broadcaster does not understand what a verification should be, but appears friendly and pleasant in its attitude, it would behoove the listener to write again, explaining the difference in concept and trying to let the station understand the significance of a reception verification. In this instance, the listener might use a letter such as follows:

> "Thank you for your kind letter in which you have stated that you received my reception report. I am very delighted to have heard from you and to have made this contact with your station. As a shortwave listener my favorite pastime is collecting QSL cards which are verification cards or letters in which the broadcasting station states that it has read and checked my reception report and that it finds all the information contained in the report to be correct. Then, it states the date, time and frequency of my reception which the broadcaster then verifies.
>
> I wonder if you could spare a moment to refer to my report and check the details contained therein with your broadcasting station log. I would be most grateful if you could let me know if my report was correct, mentioning, if you would, the date, time and frequency of my reception. I hope that this will not be an imposition."

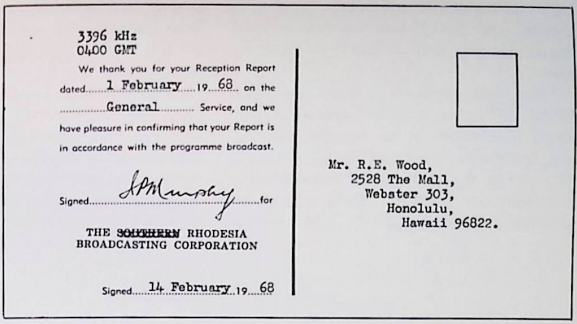
Such a letter should be sufficient to explain your desires; but beyond that, the decision must always rest with the broadcaster. So, too, must it rest with the broadcaster which has consciously decided to send only an acknowledgement rather than an actual verification. Such broadcasters may not realize that it is often as much trouble to send a personal, individual acknowledgement, often apologizing for the lack of time or opportunity to send a QSL card as it would be to check the details of a reception report and verify it in the usual manner.

If such instances are known to the listener, it may be worthwhile to suggest the above course of action to the station. The listener may, for instance, provide a sample QSL card blank text, and suggest that the broadcaster might adopt it for its own use. The listener could even send a spare QSL card from another broadcaster, especially from a station known to, and approved by, the station in question—to one African station, a QSL card from another African could be sent.

Nevertheless, in the case of broadcasters that have decided not to send verifications, but only a noncommittal text, a truly outstanding reception report may catch a technical staff member's eye and will occasionly elicit a more specific reply.

Irregular Station Operation. It is always a challenge to persuade a station especially a large, bureaucratically operated broadcaster, to admit that it is wrong, that its frequency is drifting, that it is producing spurious radiations or harmonics. Yet verifying these unusual events can be one of the most satisfying—and useful—aspects of the DX hobby.

Harmonic verification is perhaps the most interesting aspect of this battle. Harmonics are radiations produced on mul-



3396 kHz
0400 GMT

We thank you for your Reception Report dated 1 February 19 68 on the General Service, and we have pleasure in confirming that your Report is in accordance with the programme broadcast.

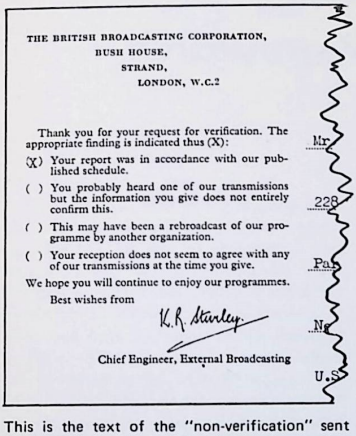
Signed J.P.M. Cumpsty for

THE ~~SOUTHERN~~ RHODESIA BROADCASTING CORPORATION

Signed 14 February 19 68

Mr. R.E. Wood,
2528 The Mall,
Webster 303,
Honolulu,
Hawaii 96822.

This QSL card has served under three political regimes in Central Africa: first, the Broadcasting Corporation of Rhodesia and Nyasaland; then, with the independence of Northern Rhodesia, later Zambia, and Nyasaland, later Malawi, the Southern Rhodesia Broadcasting Corporation. When Northern Rhodesia's name was changed to Zambia, the word "Southern" was automatically dropped and the QSL now is issued by the Rhodesia Broadcasting Corporation.



THE BRITISH BROADCASTING CORPORATION,
BUSH HOUSE,
STRAND,
LONDON, W.C.2

Thank you for your request for verification. The appropriate finding is indicated thus (X):

(X) Your report was in accordance with our published schedule.

( ) You probably heard one of our transmissions but the information you give does not entirely confirm this.

( ) This may have been a rebroadcast of our programme by another organization.

( ) Your reception does not seem to agree with any of our transmissions at the time you give.

We hope you will continue to enjoy our programmes.

Best wishes from

K.R. Stanley

Chief Engineer, External Broadcasting

Mr
228
Pa
N
U.S

This is the text of the "non-verification" sent by the BBC to acknowledge almost all reception reports. Some listeners say that the alternative check spaces indicate that the BBC must examine each report for accuracy. Nevertheless, even the BBC itself says it does not check all reports.

tiples of the fundamental transmitted frequency. The power radiated by such harmonics is usually only a matter of a few watts. Practically every broadcaster takes appropriate measures to reduce the strength of these harmonics and, in the majority of cases, they are heard only in the local area surrounding the transmitter site and are not propagated over great distances. In addition, harmonics may also be screened off by the ionosphere since although the fundamental frequency in the 15-MHz band may be coming through, there is no guarantee that a signal in the 30-MHz band (second harmonic) can be propagated to a great distance via the ionosphere.

Experienced shortwave listeners in North America have heard dozens of countries via harmonic radiation. The worst offenders in the production of harmonics are Cuba, Communist China, and the Soviet Union, especially the Siberian and far eastern broadcasters. However, many western broadcasters such as the BBC, CBC,

VoA, and many of the smaller stations in Central and South America also produce harmonics that can be heard at great distances.

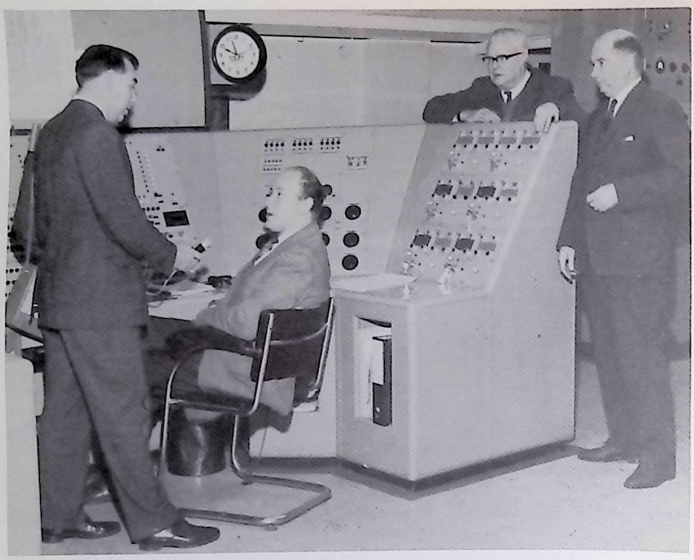
The main problem in reporting a harmonic, or other irregular operation, to a large broadcaster is to convince the station's technical staff that the fault does, in fact, lie in the transmitter, rather than in the listener's receiver. Thus, a long, explanatory letter should be sent, perhaps noting the other harmonics that have been heard by the listener at the same time on adjacent frequencies. This is designed to show the broadcaster that the reporter is, in this instance, capable technically, and that his diagnosis of the radiation in question as a harmonic produced at the transmitter is correct. If the station is convinced, and if it is willing to face facts, a verification of a transmission powered by only a few watts may result.

CHAPTER 8

Propagation and Knowing When to Listen

The hobby of shortwave listening is, in part, a semi-technical one and it is necessary for the listener to understand and appreciate the mechanics of radio wave propagation. This understanding need not be one of the physics of the ionosphere as such, but more in terms of the practical results of these laws and phenomena which govern the reception of radio waves. The listener should also know something about the sources of interfering noise, static and natural factors that degrade radio reception.

This chapter will not attempt to take the place of the many good textbooks devoted to the complex theory of radio wave transmission or reception and to the ionosphere and all the physical factors involved in propagation. Rather, this chapter will cover these phenomena solely from the point of view of the layman concerned with practical day-to-day reception of stations operating in the shortwave broadcasting bands. This chapter will also concentrate specifically on the rules-of-thumb to be used by the listener in North America, and will simultaneously attempt to answer such questions as: Why do international broadcasters use more than one frequency? Why do broadcasting stations change frequencies at regular intervals? On what basis do broadcasters pick a particular frequency? Why does reception vary so greatly with the time of day? Why does reception vary with the seasons? What is



The avid shortwave listener can learn more about radio wave transmissions and propagating conditions by tuning in the programs of the station-operated SWL clubs. Radio Nederland, Radio Canada and the BBC have SWL club programs telling much about the intricacy of shortwaves. This is BBC's Frank Henning interviewing the Transmission Controller at the Daventry transmitting site. This first hand information was later broadcast in the General Overseas Service. To the right are E.A. Beaumont, Superintendent Engineer for External Broadcasting and W.H. Thorneycroft, Engineer-in-charge, Daventry.

meant by "skip," and how does it affect what the listener will hear? Which bands should the listener use to receive very distant stations? Etc., etc.

Receiving Conditions. The listener will soon learn that receiving conditions vary widely during a single day from daylight to darkness, as well as from day to day, from month to month, from year to year, and from one 11-year sunspot cycle to the next. Fortunately, receiving conditions can be accurately diagnosed and some general principles, which are more in the nature of typical trends and tendencies rather than concrete facts and precise situations, may be stated.

For example, during the daylight hours at your receiving location, you will first note that only the higher radio frequencies (shorter wave lengths) will produce a large number of listenable radio signals at good signal strengths. The lower frequencies (longer wave lengths) are at the same time devoid of distant radio signals. However, if you are within reasonable distance of a

transmitter operating on the lower frequencies, it may be heard totally interference free, which means that it always pays to check the lower frequency international broadcasting bands during the daylight hours. During those hours, you may be able to catch some of the low-powered broadcasters—at distances from 150 to 750 miles—which would be swamped by the higher-powered stations (even at much greater distances) when darkness approaches.

This, for example, is the time for shortwave listeners in the more northerly part of the United States to log, and in most cases listen to and enjoy, the low powered Canadian commercial stations in the 49-meter broadcasting band. None of these stations is powered at over 1 kW, but because distant interference is absent they may be heard with clear signals in many parts of the United States. Luckily, these Canadian stations are dotted fairly evenly along the Canadian/USA border and are located in such cities as St. John's, Newfoundland; Halifax, Nova Scotia; Montreal, P.Q.; Toronto, Ont.; Calgary, Alberta; and Vancouver, B.C.

Listeners in the southern sections of the United States, on the other hand, should look for any Radio Havana or Mexican transmitters which may be in operation during the daylight hours. Listeners on the Gulf Coast and in Florida may also have a chance to receive certain normally rare low-frequency stations in the Caribbean.

Along the eastern seaboard of North America, the BBC World Service on 6195 kHz is usually the first European signal to fade in during the local afternoon. In New England, when the days are quite short in winter, but long in summer, the BBC signal may fade in only an hour or so after local noon in midwinter, but quite late in the afternoon in summer.

On the other hand, a listener in Florida where days are of almost equal length in all seasons, the fade-in time of European and North African signals will not vary as greatly.

The listener will usually find that around local dusk he should start listening for stations to his east—coincident as night falls over these areas gradually moving from east to west. Usually, these signals will peak in strength just as the sun sets at the transmitter site. When it is completely dark at your listening post, look for stations that are on azimuths directly to the north or south—as well as those in the darkness zone to your east—and then increasingly to your west. The mechanics of this nightfall phenomenon are more easily understood with the aid of a world globe.

The change in receiving conditions—just described—is simply one of following the path of the radio signal from darkness to daylight; that is, the transmitter is in darkness but you, at the receiver, are still in daylight. As evening approaches, stations to your east will be in total darkness, while stations to your west may still be in daylight. Thus, it is sometimes possible to "screen off" potential interference by listening in the late afternoon and early evening for signals to your east while conditions to your west are so poor as to attenuate the interfering signals. For example, listeners on the east coast of North America should try at this time for CHNX, Halifax, N.S., on 6130 kHz. Listeners will often note that by mid-afternoon (the exact time varies with the season, being earlier in winter than summer) CHNX will be skipped out in favor of Madrid, Spain, on the same frequency. The European stations often reach their peak at this time; and if you stay tuned to CHNX, by the time darkness reaches Halifax, you will find that the Canadian's signal strength has been reinforced, and it, rather than Madrid, may again dominate the frequency.

DX'ing At Dawn. As you might suspect, the sequence of events at local dawn are just the reverse of the nightfall phenomenon discussed above. If you listen on the 60- or 49-meter broadcasting bands, you

will find that at local dawn—or shortly thereafter—all stations to the east (except those within the daylight reception range) have faded out. The reason is simple: the transmitting sites are in daylight.

The vast expanses of darkness to the west of the listener will provide good DX for a short time after local dawn. Thus, in North America, the lower-frequency European stations will have faded out and this is the time to look for Asians and broadcasters from the Pacific Islands. Many of these stations operate with very low power output and constitute rare DX catches. The 60- and 49-meter bands will also provide interesting dawn and post-dawn DX openings to the more westerly parts of Latin America—such as Honduras, El Salvador, Guatemala, Nicaragua, etc. The dawn and post-dawn period may be the one and only time you are likely to be able to hear many of these weaker stations with readable signals.

The North American listener located in Quebec, Nova Scotia, or the state of Maine, enjoys another advantage. If that listener is far enough north, a belt of darkness, the polar night, lies to his north and northwest of stations in northern Europe. Thus, a signal path that is in almost total darkness may still be open! One of the greatest thrills for any North American DX'er is to catch a European 49-meter broadcaster by the polar night propagation route. During the months of December and January it is worthwhile tuning for Radio Sweden's local midday transmission on 6065 kHz, or one of the transmitters from Radio Norway, sometimes active in this band.

In western North America, on the other hand, while the northern European stations may occasionally be audible, polar night propagation is more likely to be found from transmitters directly over the North Pole into Soviet Asia.

But there is one major drawback in DX'ing the 90-, 60-, or 49-meter bands—other than the obvious man-made problem of interference from the utility or point-to-point stations. It is atmospheric static, the loud crashes of electrical noise caused by tropical thunderstorms. Atmospheric static is at its worst where vast areas of

To evade the sometime erratic nature of shortwave propagation some of the major broadcasters are resorting to relay transmitters. Because the relay is closer to its audience the signal is naturally stronger and more optimum frequencies can be put in use. This QSL verified a special 16-meter test.

sea and land interact. As the listener soon learns with minimum difficulty, static is considerably worse in summer than winter and at night than during the day.

High-Frequency Scheduling. The higher-frequency, international broadcasting bands (19, 16, 13, and 11 meters) and to a much more limited extent the 31- and 25-meter bands are the frequencies you would normally tune during the daylight hours. As a general rule, it might be surmised that when the frequencies at one end of the shortwave spectrum fade in, those at the other end of the spectrum will fade out. Unfortunately, it is not quite that simple. Everything relative to radio wave propagation depends upon the sunspot cycle.

Considerable information has been published elsewhere regarding sunspots and the 11-year sunspot cycle. Suffice it to say that, at this writing in 1969, the current sunspot cycle had divided itself into two peaks—one in 1968 and a second in 1969. It is to be expected that shortwave listening conditions in the higher frequencies will continue to be excellent for the next two, or possibly three years.

Many international broadcasters have a special member of their staff devoting his full time to studying propagating conditions. Upon his recommendation the broadcaster chooses the frequency and the band to be used to reach a certain target area.

Take the BBC, London, as an example. If the BBC wishes to reach a listener in North America during the listener's spring or fall morning hours, or in the very middle of the day, the choice of the proper international broadcasting band is very simple. The 11-meter broadcasting band would be too erratic for consistent propagation. Technically expressed, it may be said that the 11-meter band is near or slightly above the maximum usable frequency.

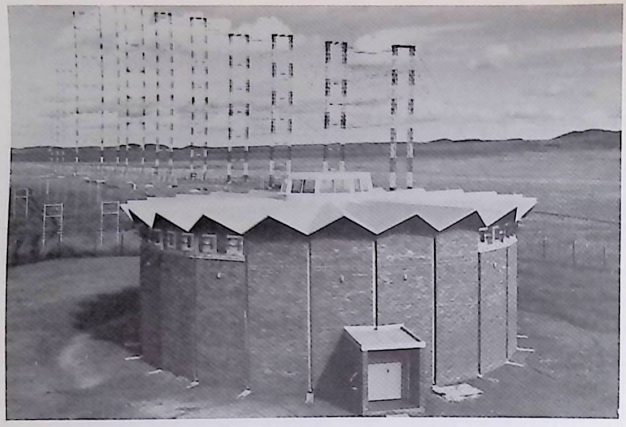
On 19 or 16 meters, on the other hand, over a daylight-to-daylight path, there may be weakening of the broadcasting signal at the listener's location. Technically, this weakening is due to signal absorption in the ionosphere. By elimination, the choice has become clear: the 13-meter international broadcasting band. And that, in fact, is the principal band used by the BBC for its North American service which reaches listeners in most parts of North America before noon, the listener's time.

During the winter months, the BBC need not fear excessive signal attenuation (as there is now less daylight over the path) and so it is a good idea to keep a second "back-up" channel in use. Thus, although the 13-meter band may still be used by the BBC, the broadcast will also be heard on 19 and occasionally 25 meters.

In mid-afternoon, North American time, the BBC begins its World Service broadcasts to North America. At the 1969-1970 stage of the sunspot cycle, the 13-meter band may still be open over the north Atlantic path between England and North America. Although BBC engineers may decide to continue the use of 13 meters, they will not rely wholly upon this band as the fading out of the signal moves closer and closer to noon during the afternoon hours. The BBC may decide to effect a compromise between a good day-time frequency and a good evening frequency by choosing a channel in the 25- or 19-meter bands. Better still, the BBC may operate on several frequencies in several different bands.

There are many factors involved in the choice of multiple frequencies. First, is the band itself open to the target area? Second, is the particular frequency within the band likely to be interference free? Such multiple frequencies, carrying the same World Service program at the same time, are known as parallel frequencies, or dual frequencies.

Because the actual effects of sunspots upon radio wave propagation are unpredictable on an hour to hour basis, the choice of any particular band is quite arbitrary. In fact, the arbitrary hour chosen for sign-



Shortwave transmitting sites are usually selected so that the necessary antennas are in the open country and unobstructed. The antennas of Radio R.S.A. are located at Bloemendal near Johannesburg. Some of the curtain arrays and supporting masts are seen behind the 23-sided switch house. Broadcasters will always have facilities to change antennas to match the frequencies in use. Radio R.S.A. is building more beam antennas.

ing off or "switching out" on any one frequency is inevitably bound to be either before or after the actual signal fade-out time. This fade-out time can and does vary from day to day. Hence, if the transmitter is still on the air, but totally inaudible at the listener's location, he may wonder why the station wastes its time and money beaming a signal into thin air. Conversely, the listener may be receiving an excellent signal when suddenly the transmitter is switched off the air. Then, of course, the listener will ask, "Why switch off when the signal is booming in?"

Actually, even if a station could predict the exact moment when the signal will fade out in its target area, it is unlikely that this time would coincide with natural breaks in the programming. Since the station wishes to keep its audience, these programming breaks must be announced and the listeners constantly advised the frequencies to which they should retune.

When the European stations on 19, 16, or 13 meters fade out—as they are liable to do in the North American afternoon or early evening—these bands don't go dead. On the contrary, this is when some interesting DX stations may now be heard from the west, as other countries and continents now take their turn in dominating these high-frequency broadcasting bands.

While at the North American noon hour the listener may be tuned to the European stations, in the early evening hours he can usually count on listening to Radio Japan or Radio Peking. At certain seasons of the year he will also find that he can hear a strong signal from Radio Australia which beams its evening North American service at 0100-0300GMT, in the 19-, 16- and

13-meter bands. Thanks to the fade-out of the European signals, the propagation engineers in Melbourne need only avoid potential interference from broadcasters in the Americas.

As the sun continues its sweep toward the west, out over North America and across the Pacific, you may find that the high frequencies have all faded out. On the very next night—and at the same hour—you may be surprised to find the same international bands wide open and full of signals. These severely changing characteristics are usually the result of ionospheric storms. The effects may last from one to three days, so when you tune in and find vast expanses of your dial a total blank, don't blame your receiver or antenna, check to be sure that reception hasn't been adversely affected by an ionospheric storm.

However, as the sun continues to move to the west, the listener should be able to hear stations from greater distances and as the 19-meter signal from Radio Australia from the Shepparton, Victoria transmitter fades out, it is possible that the Western Australian transmitter at Perth on 15,425 kHz may be audible. This is simply due to the fact that Perth is still in daylight, while Shepparton is in darkness. Thus, the avid listener can say that Shepparton is being "skipped out" in favor of the Perth signal which has "skipped" right over Shepparton.

The hours before local dawn are also a good time to look for stations from India, Pakistan and Ceylon, by the trans-Pacific route. Such stations as Radio Ceylon, Colombo (11,800 kHz) and All India Radio, Delhi (15,080 kHz) may often be heard in North America.

Many of the international broadcasting bands may be open one day and devoid of interesting listening the following day. And of even more vital importance, a particular broadcasting band may provide reception from one isolated area at one time, on a given day, and on the next day may produce signals from a different area. For a listener in North America, for example, the 19-meter band may, during one evening, show strong directionality towards the Far East with numerous signals from Radio Peking; the BCC, Taipei; the FEBC, Manila, and other Asian stations at good strengths. On the following night propagating conditions may swing to the south with the different regional outlets from Australia, Radio New Zealand, and other south Pacific stations being audible that could not be heard 24 hours earlier.

Thus, even though two or more stations may decide to use the same frequency in one of the high frequency bands, there need not always be a power battle between them. One night, the listener may find one station is in the clear; and on a second night, the other station may dominate; while on a third night they may indeed fight it out in a contest of mutual interference.

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This is an exceptional book in that the author conveys to the reader his enthusiasm for shortwave listening. The text explains the "how, what and why" of this unique hobby activity. Drawing upon his own extensive knowledge and experience, the author tells about the broad panorama of international shortwave broadcasting; how it is organized, why some countries use it more than others, what broadcasters are trying to accomplish, etc.

There are chapters on seeking verification QSL's, the "why" of jamming, and knowing when to listen—written with both avid DX'er and novice SWL in mind. Because he is conversant in many languages, the author's thoughts about station identification should prove to be of outstanding value to all shortwave listeners.

SHORTWAVE VOICES OF THE WORLD is the first wholly new book on this subject that has been published in the past decade.

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